UNIVERSIDADE DE LISBOA

Instituto Superior de Economia e Gestão

Ageing and Entrepreneurship:

Firm Creation and Performance among Older Individuals

Catarina Seco Matos

Orientadores:
Prof. Doutor António Miguel Areias Dias Amaral, Prof. Doutor Fernando Ribeiro Mendes

Tese especialmente elaborada para obtenção do grau de
Doutor em Estudos de Desenvolvimento

2018

UNIVERSIDADE DE LISBOA

Instituto Superior de Economia e Gestão

Ageing and Entrepreneurship:

Firm Creation and Performance among Older Individuals

Catarina Seco Matos

Orientadores:
Prof. Doutor António Miguel Areias Dias Amaral, Prof. Doutor Fernando Ribeiro Mendes

Tese especialmente elaborada para obtenção do grau de
Doutor em Estudos de Desenvolvimento

Júri:

Presidente: Doutora Maria do Rosário Lourenço Grossinho, Professora Catedrática e Presidente do Conselho Científico, Instituto Superior de Economia e Gestão da Universidade de Lisboa

Vogais:

- Doutora Friederike Welter, Professor, Universitat Siegen (Alemanha)
- Doutor Teemu Kautonen, Full Professor, Aalto University School of Business de Helsínquia (Finlândia)
- Doutor António Miguel Areias Dias Amaral, Professor Auxiliar, Instituto Superior Técnico da Universidade de Lisboa
- Doutora Elsa Maria Nobre da Silva Fontainha, Instituto Superior de Economia e Gestão da Universidade de Lisboa

2018

Resumo

O actual foco no envelhecimento activo torna o empreendedorismo sénior um fenómeno de crescente relevância. Pouco se conhece sobre as motivações do empreendedorismo sénior e ainda menos sobre os seus efeitos.

Esta tese produz conhecimento sobre os empreendedores seniores e analisa o seu desempenho empresarial do ponto de vista objectivo e subjectivo. Assenta em teorias de diferentes disciplinas, como a gerontologia, psicologia e economia. Adicionalmente, analisa dados primários (um questionário) e secundários ("Quadros de Pessoal").

A investigação contempla quatro contributos principais. Primeiro, é desenvolvido e aplicado na revisão da literatura um esquema conceptual de análise do empreendedorismo sénior. Verifica-se uma carência de investigação sobre o desempenho organizacional das empresas. O segundo contributo reflete a realidade Portuguesa do empreendedorismo sénior, verificando-se que os seniores mostram uma reduzida vontade de enveredar pelo empreendedorismo, admitindo-se que as causas estejam relacionadas com os níveis de burocracia, a reduzida dinâmica dos mercados e uma cultura pouco orientada para o desempenho. Em terceiro lugar foi analisado o impacto do capital humano na criação de empresas, e da idade no desempenho organizacional. Concluiu-se que possuir experiência empreendedora e profissional está positivamente relacionada com a criação de empresas por seniores. Adicionalmente, os resultados confirmam o efeito negativo da idade no desempenho organizacional. O último contributo analisa o nível de satisfação do empreendedor para com a empresa. Verifica-se que aspetos monetários e não-monetários são, ambos, relevantes; assim como ter experiência na indústria afeta positivamente a satisfação, ao passo que um período de desemprego superior a 12 meses, prévio à criação da empresa, afeta negativamente a satisfação.

Esta tese tem implicações no desenho de políticas públicas relacionadas com empreendedorismo e em futura investigação. Aqui, admite-se que a utilização do conceito de idade percebida pelo próprio (em lugar da idade cronológica) possa ser um indicador útil na adesão e desempenho do empreendedor. O efeito negativo do desemprego anterior à criação da empresa deve ser reconhecido e abordado pelos decisores políticos.

Palavras-chave: Desempenho; empreendedores seniores; envelhecimento da população; Portugal; satisfação com o negócio.

Abstract

Senior entrepreneurship is a phenomenon of growing interest due to the current focus on active ageing. Little is still known about the determinants of senior entrepreneurship and less regarding its outcomes.

This thesis provides insights about senior entrepreneurs and examines firm performance from subjective and objective levels. It is based on a multi-theory approach, from gerontology, psychology, to economic theories. Moreover, primary and secondary data was adopted: a questionnaire and a national database "Quadros de Pessoal".

The research has four main contributions. First, a framework of analysis is developed and applied to review senior entrepreneurship literature. A lack of evidence related to firm performance was found and more theory-based articles should be developed. Second, the Portuguese reality of senior entrepreneurship is examined and we find that Portugal faces an older population who exhibits a low willingness to engage in entrepreneurship, probably due to the levels of bureaucracy, low market dynamics, and a culture not oriented to performance. Third, we explore the impact of human capital traits on firm creation and of age on firm performance. Having entrepreneurial and paid employee experience is positively related to firm creation for older individuals. Furthermore, our results confirm the negative effect of being older on firm performance. Fourth, we examine business satisfaction among senior entrepreneurs – monetary and non-monetary are both important to explain business satisfaction and having industry experience positively affects business satisfaction, whereas having spent more than 12 months unemployed immediately before founding affects it negatively.

The thesis leads to implications for policy makers and future research, namely on the appropriateness of considering self-perceived age (instead of chronological age) as an indicator influencing entrepreneurship. The negative effect of unemployment status before startup should be acknowledged and tackled by policy makers.

Keywords: Ageing, business satisfaction, performance, Portugal, senior entrepreneurs

Acknowledgements

I would like to start by acknowledging and thanking Professor Miguel Amaral, the supervisor of this doctoral thesis, for allowing me the autonomy to follow my own pathways of research interest, for his thoughtful advice, for trusting in me and being patient, and for his friendship.

I thank Professor Ribeiro Mendes for the initial enthusiasm and the opportunity to get to know senior entrepreneurship initiatives.

I am grateful for the support Professor Rui Baptista has given me since the beginning of this thesis, the opportunity to visit him in Brunel University and the collaborative research.

I also acknowledge the vision and capacity of Professor José Pereirinha for creating and developing a Phd Program on Development Studies.

I am in debt to Professor Idalinha Sardinha, who accompanied this thesis since the beginning and for remaining available and supportive throughout. Thank you!

I am especially thankful to all the entrepreneurs who voluntarily participated in this study. I truly hope that these findings will help increase knowledge on senior entrepreneurship and assist the design of more effective support actions. I would like to thank both the Portuguese Ministry for Social Security, Labor and Solidarity and the Ministry of Economics for providing the data used in this study.

I am also grateful for the project "Tarde Demais para Empreender? – O empreendedorismo como forma de participação das pessoas com +50 anos", supported by the PROGRAMA OPERACIONAL ASSISTÊNCIA TÉCNICA, co-funded by the EUROPEAN SOCIAL FUND, and to the grant obtained through the Horizon 2020 research project on "Financial and Institutional Reforms for Entrepreneurial Society (FIRES) (Ref: 649378/2015), for granting me financial support for the thesis.

My thanks to all my research colleagues at Research Centre In Economic and Organizational Sociology (SOCIUS) and Research in Social Sciences & Management (CSG) at Lisbon School of Economics & Management, especially Daniele dos Santos Fontoura for the interesting discussions about ageing, for her help in proof-reading sections of this thesis, and her companionship during the period she spent in Portugal. I also

acknowledge the important support given by Bruno Gonçalves, Mónica Fraga and Teresa Oliveira. And to Filomena Ferreira for her enthusiasm in driving the knowledge generated by this thesis to the wider community. I am also grateful to my research colleagues at the Centre for Innovation, Technology, and Policy Research (IN+) at Instituto Superior Técnico, specially Diana Neves, for her availability to discuss the thesis and companionship during the last year. I thank Margarida Suarez for her support during the last year. More recently, the support given by Sandra Machado.

To Professor Gangaram Singh (National University) and Ting Zhang (University of Baltimore), I am grateful for being able to meet and learn with them and with their research. I am also grateful for what I have learned with Professor Maria João Santos.

I am especially grateful thankful to my dear friend Paula for helping me improve my English skills and for proof-reading the whole thesis. I extend my thanks to Susi, Craig, and Morais who helpfully assisted in the English proof-reading of the dissertation.

I am extremely thankful to my aunt Guida who challenged me to start a Phd and who is always supporting my personal and professional development. I am also truly grateful for the support my uncle Manito gave me during the development of this thesis and for reviewing sections of this thesis.

To my grandparents, Lucia and Álvaro, my sincere thanks and admiration for being amazing senior entrepreneurs, and examples of social, cultural and political interventions towards a better society. Thank you to my grandmother Lourdes for being an example of strength, self-care, and for representing my grandfather well. Thanks for the opportunity of learning and sharing my life with you!

If this thesis exists is because my mum always encouraged me to find myself and to devote time to what I consider important, while challenging me to contribute to a better world. Thanks for everything!

I am grateful to my relatives and close friends for giving me strength and words of encouragement.

My thanks to Bip and Mariana. To Bip for all the support with the thesis, the enthusiasm in discussing the topic, and more important, for the possibility of sharing an evolving and happy life together. To Mariana, for being such a sweet and happy baby who makes me laugh, play, learn and feel new things.

To my father, who is always with me.

Table of Contents

List of Figures

List of Tables

List of abbreviations

AAI	Active Ageing Index
EU	European Union
GEM	Global Entrepreneurship Monitor
INE	Instituto Nacional de Estatística – National Institute of Statistics
LEED	Linked Employer-Employee Data
OECD	Organization for Economic Co-operation and Development
QP	Quadros de Pessoal – Personnel Records
RQ	Research questions(s)
SE	Senior entrepreneur(s)
TEA	Total entrepreneurial activity
TPB	Theory of Planned Behavior
WHO	World Health Organisation
US	United States

A. Introduction

A.1. Motivation and Aims of the dissertation

The creation and sustainability of companies are considered critical for economic growth and society's development (Audretsch, 2004; Baumol, 1968). At the same time, throughout the developed world population birth rates are falling and life expectancies are rising. As a result, the overall demographic structure, and the workforce, of societies is becoming markedly older. According to Shepherd (2015), research on entrepreneurship must accompany mega trends of society, such as ageing. This study aims to bring these two themes together by exploring how older individuals relate to entrepreneurship.

A review on the personal and external factors affecting entrepreneurial behavior argues that age is one of the main determinants of entrepreneurship and self-employment (Parker, 2009). Senior entrepreneurship[1] refers to individuals aged 50 or over who intend, are in the process of, or have created a business. It includes both individuals who have never started a firm before (novice entrepreneurs) as well as those who have already started one (serial and/or portfolio entrepreneurs) (Kautonen, 2013). Self-employment and entrepreneurship have been gaining increased attention as feasible occupational strategies for older individuals (Kautonen & Minniti, 2014; Singh & DeNoble, 2003) and emerging either as a life style option or as an "imposition" due to lack of opportunities in the formal labor market. In economic terms, senior entrepreneurship may mitigate the rise in social security costs (Kautonen, 2008; Zhang, 2008) and potentially contribute towards economic and social development (Audretsch, 2004; Baumol, 1968).

Nowadays retirement is no longer a one-way transition out of the labor market, it is more likely to be cyclical than linear. Many workers retire from their job in order to start a different form of work, such as self-employment and/or entrepreneurship (Zissimopoulos & Karoly, 2009). Self-employment/ entrepreneurship could act as a "bridge job" between full engagement in the labor force and retirement (Quinn, 2010).

[1] Hereafter we use the term SE(s) for *Senior Entrepreneur(s)*.

Even though, the effect of age on entrepreneurship is not clear within the literature. Whereas some conclude for a negative relationship between age and entrepreneurship (Lévesque & Minniti, 2006, 2011; Singh & Verma, 2003; Wagner, 2006; Zissimopoulos & Karoly, 2007), others propose a positive relationship. Firstly, Lévesque and Minniti (2006) postulate that older individuals attach a lower value to future returns and thus entrepreneurship may not represent an attractive option. On the other hand, studies advocating a positive relationship, suggest that, among other reasons, the self-employed retire later than employees and some individuals leave their employees' careers to become self-employed (Burr & Mutchler, 2007), older individuals have more time to accumulate opportunities, develop ideas and, also start a business (Evans & Leighton, 1989), older individuals may face age discrimination on the job, they may will to balance work and leisure, and become their own boss.

Existing literature on senior entrepreneurship has mainly focused on entry and what drives it (e.g. Biehl, Gurley-Calvez, & Hill, 2014; Harms, Luck, Kraus & Walsh, 2014; Kautonen & Minniti, 2014; Kautonen et al., 2010; Kautonen et al., 2013; Lévesque & Minniti, 2006; Minola et al., 2016; Singh & DeNoble, 2003). There is, however, a lack of knowledge on senior entrepreneurship and firm's performance (Li, 2015; De Kok, Ichou, & Verheul (2010); Gielnik et al., 2012; Kautonen et al., 2017). For Blackburn and Kovalainen (2009), senior entrepreneurship is a young and emergent topic of research within entrepreneurship research. Furthermore, according to Ainsworth (2015), senior entrepreneurship "cannot be assessed purely in economic terms. Older people enter senior entrepreneurship for various non-monetary benefits, such as greater independence, autonomy and control, flexibility and the chance to be creative, and appear to enjoy higher rates of satisfaction than those in paid employment. This suggests that an evaluation of its overall utility needs to take these social benefits into account" (p. 249). At the same time, as entrepreneurship is regarded as an option to promote active ageing (WHO, 2002), a subjective assessment should also be done regarding the influence of entrepreneurship on the individual and not exclusively at an objective dimension (considering sales and job creation).

By focusing on older people, this study aims to shed light on how entrepreneurship might be shaped by the life stage of the individual. For instance, we know that older individuals have had a longer life span and, consequently, may hold more accumulated

resources (Parker, 2009). Nevertheless, having a longer life span may also increase the likelihood of having been unemployed or having spent a longer spell of time out of the labor market, which may lead to human capital depreciation (Neuman & Weiss, 1995; Parker, 2013). Furthermore, according to socioemotional selectivity theory (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999), we know that older individuals acknowledge time as a scarcer resource and thus assign a lower value to future outcomes (in line with Lévesque & Minniti, 2006) and shift their life goals from knowledge to emotionally oriented ones. Lifespan theory poses that as individuals get older, their cognitive ability decreases in terms of fluid intellectual abilities (i.e. abilities to relate and understand more complex ideas), whereas there is a gain in knowledge and skills they have acquired over the life course. Moreover, the extent of the losses the individual faces, depends on his/her own socio-cultural characteristics (Baltes, 1987). In this context, this study makes an important contribution by examining and gaining a deeper understanding of the significance older age might have on entrepreneurship.

The overall objective of this thesis is to gain a better understanding of the scope and potential of senior entrepreneurs (SEs) with particular focus on the Portuguese context. More specifically, we examine firm creation and performance of SEs. Special analysis is done regarding the role of human capital on senior entrepreneurship entry. Firm performance is assessed according to two dimensions – objective (e.g. sales, job created), and subjective (e.g. business satisfaction, quality of life). We follow the advice of Jennings and Beaver (1997), for whom performance must not be exclusively considered from a financial point of view, resulting that a variable that assesses entrepreneurs' perception of firm success is also needed (Headd, 2003).

The findings of this research are threefold. Firstly, to enhance knowledge of senior entrepreneurship through the testing of statistical hypotheses on entrepreneurial behavior in the Portuguese context, while also broadening the literature regarding entrepreneurship by examining the effect of older age on firm creation and performance. The Portuguese context of senior entrepreneurship is also examined. Secondly, the dissertation should also serve to enlighten policymakers about the motivations, human capital resources, and success factors which are involved in the entrepreneurial process of SEs, ultimately contributing to the design and implementation of policies supporting the needs of SEs. From a public policy

perspective, it is important to clarify the potential performance of these businesses, not only the amount of employment which they may create and possible volume of sales, but also subjective metrics such as enabling individuals to remain active, with high levels of satisfaction later in life, and able to apply their accumulated human and social capital. Thirdly (last but not the least), although SEs are not a homogeneous group, it may be useful and important for older individuals to gain a deeper knowledge about other individuals' entrepreneurial experiences and, potentially, acknowledge common motivations and barriers.

The Portuguese context holds academic and policy relevance as the country has one of the largest ageing population worldwide. In 2012, around 24% of the population was aged over 60 with Portugal due to host the second largest ageing population in 2050 behind only Japan (UNFPA 2013). Thus, studying the Portuguese environment, can act as an advanced look into social environments which will become even more common worldwide.

A.2. Research questions and approach

This thesis adopts a multi-theory approach to examine senior entrepreneurship. Human capital theory (Becker, 1962) serves as a useful lens through which to examine firm creation. Moreover, given the twofold analysis of firm performance – made possible by the two sources of available data – the present dissertation approaches the topic by analyzing business satisfaction according to a multi-theory approach, which combines the occupational choice model with procedural utility (Frey, Benz, & Stutzer, 2004), continuity (Atchley, 1989), and socioemotional selectivity (Carstensen, 2006; Carstensen et al., 1999) theories. On the other hand, the objective dimension of firm performance is examined by adopting human capital (Becker, 1962) and socioemotional selectivity (Carstensen, 2006; Carstensen et al., 1999) theories.

The four studies comprised in the present thesis attempted to answer the following research questions:

Q1 *What are the main theories, empirical findings, and research opportunities on senior entrepreneurship?*

Q2 *Why is Portugal a relevant case-study on senior entrepreneurship and what knowledge is available?*

Q3 *What is the role played by human capital on firm creation of senior entrepreneurs?*

Q4 *How does age influence firm performance?*

Q5 *What is the role of human capital on business satisfaction of senior entrepreneurs?*

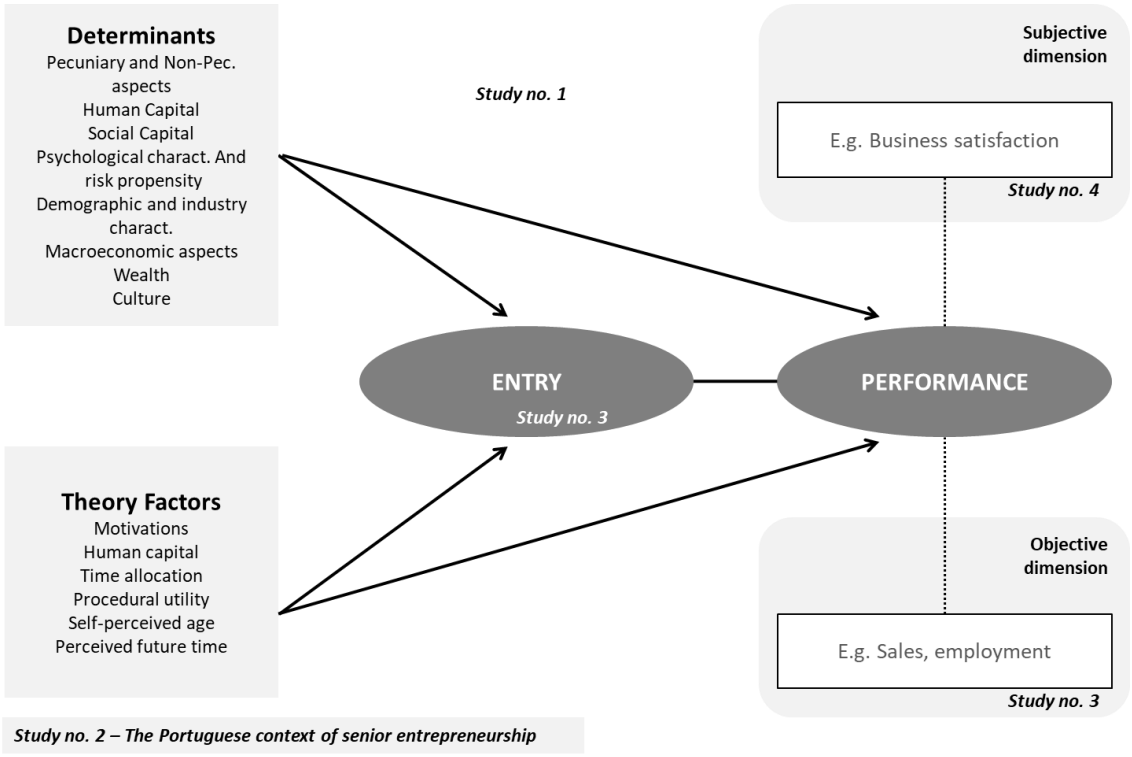
The first research question aimed to gather, discuss and identify gaps in the literature regarding senior entrepreneurship. Thus, a systematic literature review is undertaken to explore and assesses existing literature (study no. 1).

Regarding Q2, no research existed analyzing or addressing the relevance of senior entrepreneurship for the Portuguese context. Study no. 2 aims to address Q2 by gathering and discussing information from different sources and type of data on the Portuguese context.

Regarding Q3, study no. 3 examines firm creation adopting the lens of human capital. It is an innovative and important analysis because it distinguishes between young and senior entrepreneurs as well as the mode of entry – startup vis-à-vis acquisition. Q4 examining the relationship between age and firm performance is also developed in study no. 3. This study is based on a large national database.

Firm performance, measured in a subjective dimension, is the focus of Q5. Despite advances that have been made regarding entrepreneurship and well-being (Block & Koellinger, 2009; Carree & Verheul, 2012; Cooper & Artz, 1995), previous research does not analyze which factors influence business satisfaction of senior entrepreneurs. Only Kautonen et al. (2017) have analyzed the outcomes of senior entrepreneurship from an individual perspective. However, the authors do not analyze how and which factors influence them. Based on a questionnaire specifically designed to this research, study no. 4 attempts to tackle this shortcoming. Figure A-1 summarizes the approach adopted by the four studies to analyze senior entrepreneurship.

Figure A-1 Summary of the research design



Four studies regarding senior entrepreneurship were developed. In addition to these, the thesis comprises an introduction that presents the topic and its relevance, the aims of the dissertation, and provides an overview of the four inter-related studies which make up the thesis. The next four chapters are self-contained and complementary pieces of research. Study no. 1 undertakes a systematic literature review on senior entrepreneurship and introduces and explains theories that have been adopted and developed within the topic. Study no. 2 looks at senior entrepreneurial activity in Portugal, providing a description of the Portuguese context in terms of ageing and entrepreneurship. Study no. 3 looks at firm creation and performance of senior entrepreneurs, and study no. 4 examines senior business satisfaction. Even though each of these studies addresses a specific research question (or two, in the case of study no. 3) and tests different propositions, they work both as independent studies but also as interrelated, and should be viewed as concurrent works. Finally, the thesis concludes with a chapter in which we discuss the main findings and suggests some implications of this research work.

The four studies of this thesis offer insights for future theorizing and empirical approaches on senior entrepreneurship, as well as practical implications for entrepreneurs and policy makers.

STUDY 1

1. Senior entrepreneurship: A critical review and research agenda

1.1. Introduction

The phenomenon of senior entrepreneurship[2] has attracted the attention of policy-makers and practitioners around the world due to its potential contribution towards social and economic development (Zhang, 2008). The associated rise in scholarly interest is reflected in the growing tally of publications in the academic press about senior entrepreneurship as a distinct form of entrepreneurship (e.g. Kautonen & Minniti, 2014; Lévesque & Minniti, 2006; Minola, Criaco, & Obschonka, 2016). The topic has received attention over the last ten years and much of the early writing on senior entrepreneurship was atheoretical (half of the theory-based articles were developed since 2014). Early research has mainly focused on what drives individuals to start companies at an older age, only recently some articles bring about innovative approaches - Kautonen and Minniti (2014) associate firm creation with self-perceived age instead of chronological age and two theory-based articles analyzing entrepreneurial performance at an individual-level (Kautonen, Kibler, & Minniti, 2017)) and firm-level (Gielnik, Zacher, & Frese, 2012) were developed. These studies are producing more complex and theory-based analysis on the topic, they are more driven towards the outcomes of senior entrepreneurship and not merely focusing on what determines entry.

This review contributes to the development of theoretical and empirical approaches explaining firm creation and performance of older individuals. Parker (2009), in his review on the personal and external factors affecting entrepreneurial behavior, argues

[2] Hereafter we use the term SE(s) for *Senior Entrepreneur(s)*.

that age is one of the main determinants of entrepreneurship and self-employment. Extending previous reviews of senior entrepreneurship (Ainsworth, 2015; Furlong, 2004; Gonçalves & Pifano, 2015; Halvorsen & Howell, 2016; Lewis & Walker, 2011; Luck, Kraus, & Bouncken, 2014; Maritz, 2015; Minola & Criaco, 2014; Kautonen, 2013; Patel & Gray, 2006; Rogoff, 2007; Weber & Schaper, 2004), we introduce and discuss the profile of the senior entrepreneur (SE) and the potential contribution of senior entrepreneurship to create personal, social and economic value. We also analyze and discuss theory-testing articles. To the best of our knowledge, the present study is the first systematic review specifically focused on senior entrepreneurship. As a body of literature develops, it is useful to take inventory of the work that has been accomplished and identify new directions and challenges for the future. Contributions and shortcomings of past research regarding entrepreneurship among individuals aged 50 or over – hereafter referred to as 'Senior Entrepreneurship Research' (SER) - is examined, and we put forward recommendations for future research. To analyze this line of inquiry, we organize the literature reviewed in: theory approaches, focus of research stream and a section referring for concept of SE, context of the studies and methods applied.

By placing SER centrally, we do not seek to provide an exhaustive account of everything written on entrepreneurship that has a finding related to age. Instead, we review the literature that examines firm creation and performance of senior entrepreneurs. This approach is employed to identify directions for SER and theory development. This review is timely and responds to Ainsworth's (2015) observation that it is necessary to undertake a broad evaluation of senior entrepreneurship's value, one that considers economic and social and human benefits of entrepreneurship. In our review, we are guided by two questions: 'What determines senior entrepreneurship?' and 'How do senior entrepreneurs perform?'. Performance is analyzed on two dimensions – subjective and objective. We employ the framework suggested by Parker (2009) to analyze the determinants of senior entrepreneurship on entry and their influence on performance, we also draw suggestions for future research.

The remainder of the article is structured as follows. Section 1.2. introduces the literature search strategy, concepts adopted and the approach applied to organize and analyze the articles reviewed. Then, section 1.3. introduces the results of the literature search. In section 1.4. theoretical approaches to senior entrepreneurship are presented.

Lastly, section 1.5. discusses the survey's results and potential theories and, section 1.6. concludes the article.

1.2. Review Method

1.2.1. Definitions

Our approach to the concept of "entrepreneur" and "entrepreneurship" focuses on all individuals that created a business. Entrepreneurship and self-employment are used interchangeably. These individuals should have total or partial ownership in the business and may (or may not) be employers.

Throughout the study, the terms senior entrepreneur (SE) and senior entrepreneurship are used to refer to individuals aged 50 or over who intend, are in the process of, or have created a business (Kautonen, 2013). These individuals may have become entrepreneurs for the first time after the age of fifty (novice/nascent entrepreneurs) or who have opened several companies during their life and opened a new one aged fifty or above (habitual entrepreneurs). This paper does not address business owners who aged with the venture.

1.2.2. Search Methodology

To examine SER, we focus on entrepreneurship research in which age is central. Using EBSCO and ProQuest databases we searched for articles that met two criteria: (1) use variations of keywords of entrepreneurship (e.g. "entrepreneur*" or "self-employ*", "owner", "business owner", "small business", "small firm", "venture") and of ageing (e.g. "ageing/aging" or "third age" or "grey" or "mature" or "senior" or "old*" or "retirement" or "midlife" or "later life") including the article's title, abstract and keywords; and (2) publication on or before May 2017. In addition to the electronic databases used for our search, the search is supplemented by manual cross checking of relevant publications' references. Exclusion of articles not published in databases Web of Knowledge or SCOPUS[3], literature reviews[4], reports, editorials, conference proceedings, working papers[5], and books or book chapters. Thus, only peer reviewed

[3] Kerr, 2017; Rolfe, Leshabari, Rutta, & Murray (2008); Singh, 2009; and, Tervo, 2014.

[4] Ainsworth, 2015; Furlong, 2004; Gonçalves and Pifano, 2015; Lewis and Walker, 2011; Luck et al. (2014), Maritz, 2015; Minola and Criaco, 2014; , Kautonen, 2013; Patel and Gray, 2006; Rogoff, 2007; Weber and Schaper, 2004.

[5] Bruce, Holtz-Eakin, & Quinn (2000); De Bruin and Firkin, 2001; Fuchs, 1980; Gray, 2004; De Kok, Ichou, & Verheul, 2010; and, Zissimopoulos, Karoly, & Gu, 2010

articles, in English, published in a journal indexed in Web of Knowledge or SCOPUS are reviewed. Articles are then screened by their relevance based on title and abstract. Afterwards, duplicates are removed. For the publications that meet the practical criteria, the full articles are analyzed and evaluated. This resulted in 48 hits[6].

Articles were analyzed and coded across areas including theories, age-range adopted, life cycle of entrepreneurship, methods, context, and focus. Within the focus, each article is associated with the research questions it answers - 'What determines senior entrepreneurship?' and 'How do senior entrepreneurs perform?'. Secondly, when applied, the paper is associated with a determinant. The determinants are organized following the approach of Parker (2009) - human capital, social capital, pecuniary and non-pecuniary aspect, wealth, demographic and industry characteristics, psychological features, macroeconomic aspects. We also add another determinant to unveil the role played by 'culture'. According to Minola et al. (2016), culture is an important factor influencing firm creation.

The second research question – 'How do senior entrepreneurs perform?', is answered by analyzing the outcomes derived by the SEs. At a subjective level, we consider individuals' utility extracted through the creation and development of the firm and, at an objective level, we reflect on firms' benefits such as employment generated, innovation, and growth. We also consider survival as being an indicator of success (Baptista, Karaöz, & Mendonça, 2014; Santarelli & Vivarelli, 2007). This two-level approach of firm performance is in line with the research of Jennings and Beaver (1997), which showed that success, must not be exclusively considered from a financial point of view. The authors highlight the "need to think imaginatively about the construction and application of success or failure criteria recognizing the pluralistic nature of business by adopting a stakeholder perspective" (Jennings & Beaver, 1997, p. 4). Citing Weber and Schaper (2007, p. 7), "subjective forms of 'success' are often as important to the

[6] This sample is based exclusively on peer-reviewed papers published both in ISI and SCOPUS databases. We complement this information, when necessary, by mentioning other documents surveyed (such as articles published in databases other than ISI or SCOPUS, reports, non-published articles, working papers, conference proceedings, books, and books chapters). We think this twofold approach is useful because: (i) it gathers the advantage of being systematic (following a methodology that is reproducible) with being comprehensive (that is of higher importance in a field that is still young); (ii) it compares research that has already been published in peer-reviewed journals (ISI and SCOPUS databases) with research that is probably under development and that will be published in the near future; (iii) it allows for the identification of present and future trends of research.

business owner as more objective ones". This twofold analysis of success is of higher relevance due to the individual under analysis – an older individual who becomes an entrepreneur. According to Carstensen (2006), older individuals assign more value to the emotional aspects of life compared to knowledge acquisition ones, due to his/her perception of lower future time. From Hessels, Gelderen, & Thurik (2008) we know that goals influence future performance. Thus, rather than evaluating the firm exclusively from an economic point of view, analysis should focus on individuals' subjective evaluation of the firm.

1.3. Senior Entrepreneurship Research

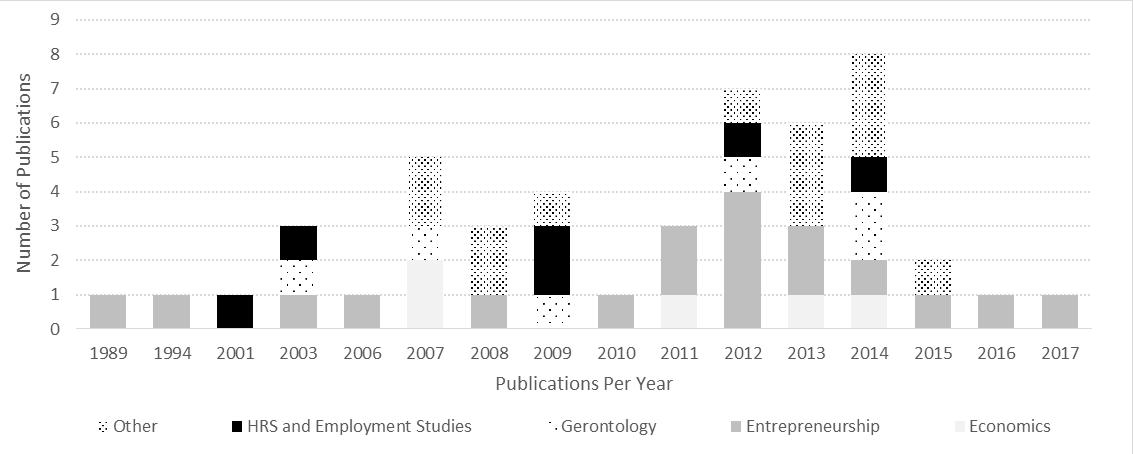
1.3.1. Pace of Research Stream

To assess the pace of SER (Senior Entrepreneurship Research), we examine its development in a variety of journals ranging from economics, entrepreneurship to gerontology and psychology across single-year periods. In 1994, the first article specifically analyzing the behavior of SEs is authored by Baucus and Human and the pace of publication has since accelerated. Before that, only Evans and Leighton (1989) has contributed on the general relationship between age and firm creation. Nevertheless, only two studies are published until 2000 and 85% of the research has been published since 2007.

SER has been mostly developed within entrepreneurship journals (18 articles) (Figure 1-1). Thirteen articles are published in a variety of fields ranging from organizational studies, social sciences, management, psychology, education, and geography. We decided to include those articles in a category called 'Other'. Among the reviewed papers, we identify twenty-one papers published in journals rated as four or three in the Association of Business Schools Academic Journal Quality Guide prepared in 2010 (Harvey, Kelly, Morris, & Rowlinson, 2010). This sample includes articles from Entrepreneurship Theory and Practice (3), Industrial and Labor Relations Review (1), International Small Business Journal (1), Journal of Business Venturing (3), Journal of Economic Geography (1), Journal of Small Business Management (1), Labor Economics (1), Organization (1), Small Business Economics (5), Strategic Entrepreneurship Journal (1), Technological Forecasting and Social Change (1), and Work, Employment & Society (2). The rest of the articles (27) are published in journals not included in ABS Guide or

that have a rate lower than 3.

Figure 1-1 SER according to the field of the journal



1.3.2. Concept of Senior Entrepreneur, Context, and Methods

To examine the concept adopted within the studies, each article was reviewed to identify the age range used. The studies employ a variety of age ranges with some receiving more attention than others. The most common type of age range used in this stream defines a SE as an individual who is 50 or over (21 studies). While other studies focus on individuals older than forty-five (n=4) and still others only consider SE those above the age of 55 (N=7).

As for the designation used, 22 studies do not use any unique designation for the individuals who become entrepreneurs at an older age, whereas others use more than one. However, the designations are multiple, the most frequently are 'older entrepreneur' (n=10), 'third-age entrepreneur' (n=4), and 'senior entrepreneur' (n=3). Other terms adopted include: gray entrepreneurs, late-career entrepreneur, later-life entrepreneur, mature entrepreneur, mid-career entrepreneur, olderpreneur, second-career entrepreneur, silver entrepreneur, and switcher.

Concerning the geographical spread of the studies included, it is noticeable that most of the studies are performed in the United Kingdom (n=13), United States of America (n=7), Finland (n=6), while for South-America and Africa no studies could be identified. This may be attributed to the screening performed, as only articles written in English were included. In addition, the fact that ageing may be not yet a central concern in these regions as it is in Europe, North of America and Australia (WHO, 2002) may be also a reason. There are six cross-country studies.

Analysis of the methodologies adopted in the reviewed papers is presented in Table 1-1. Previous research has two profiles: it is either based on a quantitative method adopting secondary data or on a qualitative method producing primary data. The first approach has the advantage of being based on larger samples and more generable variables, whereas the qualitative approach is based on specific variables related to the topic but supported by smaller samples and, thus, not allowing generalization. Qualitative research methods encompass case studies, participant observation and interviews.

When publications in journals ranked as 3 or 4 according to ABS (2010) are compared with other articles, in higher rated journals there is more emphasis on theory.

Table 1-1 Research methodologies and type of data in reviewed publications

Methods / Type of data	na	Primary data	Secondary data	Total
Qualitative		21		21
Mixed		1		1
Quantitative		3	20	23
Theory only	3			3
Total	3	25	20	48

1.3.3. Theoretical Approaches

Most of the studies included in this systematic literature review are exploratory (N=33). Among the ones based on theory, occupational choice models (5 out of 15 articles) and theory of planned behavior (5 out 15 articles) were the theory approaches mainly adopted. Other approaches adopted by the field are: push and pull approach, human capital theory, lifespan perspective, theory of time allocation, upper echelons theory, entrepreneurial event model, self-determination theory, role theory (Table 1). Section 1.4. describes these theories.

Most theory-based papers aim to contribute to enhance knowledge regarding the first research question of this article – *"What determines senior entrepreneurship*?" (Table 1-2). With the exception of two research papers – Gielnik, Zacher, & Frese (2012)

and Kautonen et al. (2017), which contributes to unveiling the relationship with firm performance (second research question)[7]. Research on outcomes of senior entrepreneurship have not been a concern of previous research. This may be a consequence of the difficulty of data collection. Future research should focus on developing theory-based articles examining the outcomes of senior entrepreneurship, both on a subjective (extending the approach of Kautonen et al., 2017) and objective level (complementing the work of Gielnik et al., 2012).

In line with entrepreneurship research, SER cuts across different disciplines to explain the phenomenon. Among 15 theory-based articles, 14 theories are identified and associated with different disciplines – ranging from economics, entrepreneurship, psychology, to gerontology.

Furthermore, among the 15 theory-based articles, 7 (47%) adopt more than one theory. The low prevalence of theory-based articles (only 31% of all articles reviewed) and multi-theory approaches to analyze senior entrepreneurship demonstrate the still young maturity of the topic (in line with Blackburn & Kovalainen, 2009).

[7] Not included in this table but worth mentioning is the work by Li (2015), conference paper, which is supported by theories of human, social and political capital. Furthermore, Holienka, Jancovicova and Kovacicova (2015), conference proceedings, is supported by the push and pull approach.

Table 1-2 Approach of the paper by contribution to the RQs

Approach of the Paper	1st RQ	2nd RQ	Both RQs	Total
Lévesque and Minniti, 2006	1			1
Lifespan theory, TPB and model of entrepreneurial event	1			1
Occupational choice model	2			2
Occupational choice model, Role theory	1			1
Occupational choice model, self-determination theory		1		1
Occupational choice; push/ pull approach	1			1
Role theory, Disengagement theory, Activity theory, Continuity theory		1		1
Socioemotinal selectivity theory	1			1
Theory of Planned Behavior, Push/pull approach	1			1
Theory of Planned Behaviour	3			3
Theory of time allocation	1			1
Upper echelons theory and lifespan theory		1		1
Exploratory Articles	24	1	8	33
Total	36	4	8	48

1st RQ refers to the first research question ("What determines senior entrepreneurship?"); **2nd RQ** refers to the second research question ("How do senior entrepreneurs perform?")

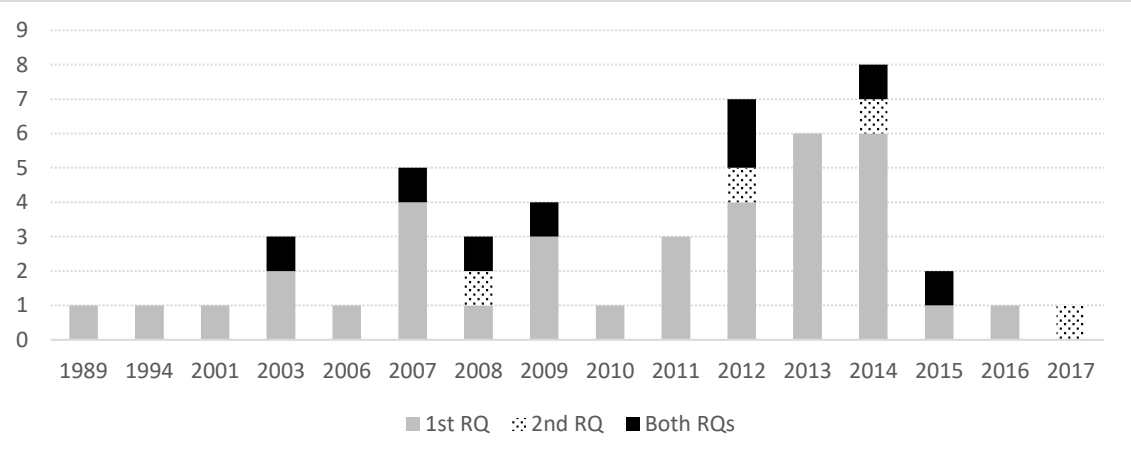
1.3.4. Focus of Research Stream

Previous literature has been analyzed by answering two research questions: 'What determines senior entrepreneurship?', and 'How do senior entrepreneurs perform?'. Then, when appropriate, each article is associated with one or more determinants.

There is an unequal dispersion of observations regarding the first and second research question of this study (Figure 1-2). Most of the articles are related to the first research question (44 studies) and the analysis of senior entrepreneurial performance,

the second research question, is underrepresented (12 studies)[8]. Potential causes for this disparity and bias toward entry are, firstly, the ease of access to this data in comparison to the difficulty of assessing outcome-based constructs, and secondly, the fact that the topic is still recent and thus previous literature was more oriented to understand what drives individuals to start a business instead of the outcomes of this activity.

Figure 1-2 Contribution to the research questions per year



Specific determinants related with firm creation and performance are analyzed based on the approach adopted by Parker (2009). Table 1-3 summarizes the observations/results reviewed. 75% of the results contribute to enhance the knowledge on the first research question (entry), whereas 25% pertain to entrepreneurial performance. More specifically, the literature reviewed mainly focus on human capital traits and pecuniary and non-pecuniary incentives. Only some of the studies focus on contextual factors such as macroeconomic characteristics and culture.

[8] Eight studies provides insights for both research questions.

Table 1-3 Focus of past research by RQ and determinant analyzed

Research question/Determinant	Human Capital	Social Capital	Wealth	Demographic and Ind. Charact.	(Non)-Pecuniary Incent.	ROP	Macroec.charact.	Culture	Total
What determines senior entrepreneurship?	14	6	10	10	16	8	4	6	74
How do senior entrepreneurs perform?	5	3	2	3	6	3	2	1	25
Total	19	9	12	13	22	11	6	7	99

Senior Entrepreneurship and Firm Creation

This section reviews previous literature regarding the influence of age on entrepreneurship and an assortment of variables associated with senior entrepreneurship.

Several studies have examined the effect of age on entrepreneurship (Burr & Mutchle, 2007; Evans & Leighton, 1989; Kautonen et al., 2013; Lévesque & Minniti, 2006; Wagner, 2006) and the results are mixed. On the one hand, some studies (Burr & Mutchle, 2007; Evans & Leighton, 1989; Liñán, Santos, & Fernández, 2011; Livanos, 2009; Van Es & Van Vuuren, 2011; Zissimopoulos et al., 2009) claim there is a positive relationship between age and being an entrepreneur late in life. This may be justified because the self-employed retire later than wage and salary workers and some individuals leave an employee career to become self-employed (Burr & Mutchle, 2007). According to Evans and Leighton (1989), older individuals have had a longer life span to accumulate opportunities, develop ideas and, hence, enter in self-employment. Furthermore, age discrimination on the job, the will to balance work and leisure and to become their own boss, added to the possible need of taking care of relatives, are possible reasons supporting entrepreneurship at older ages. On the other hand, there are studies (Lévesque & Minniti, 2006, 2011; Singh & Verma, 2003; Wagner, 2006; Zissimopoulos & Karoly, 2007) which find that as an individual gets older his/her likelihood of starting an entrepreneurial activity diminishes. Lévesque and Minniti (2006) provide a useful theoretical model, based on Becker's (1965) theory of time

allocation, for understanding the relationship between age and entrepreneurship. In the authors (Ibid.) proposed model, individuals maximize their expected well-being by deciding how to allocate time between work and leisure and how to affect hours between wage and salary job and entrepreneurship. The study (Ibid.) concludes that there is a higher likelihood for younger individuals compared to older ones to become entrepreneurs due to the age effect that decreases the potential return individuals obtain from starting a business later in life. Kautonen, Down, & Minniti (2013) extend this model by highlighting the need to contemplate individuals' entrepreneurial preferences. The authors (Ibid.) explore the relation between age and entrepreneurship by considering different concepts for entrepreneurship. They conclude that for individuals who intend to become entrepreneurs, the likelihood of entering entrepreneurship can be represented through an inverted U-shaped relationship between age and entrepreneurship (Lévesque & Minniti, 2006), achieving a peak at the age of 48. However, this relationship changes for self-employers and reluctant entrepreneurs (those who are self-employed involuntary), becoming for the former an "upward sloping and concave" (Kautonen et al. 2013, p. 10) and a flat linear curve for the latter. The reluctant entrepreneur is also more likely to return to paid employment if an opportunity is available (Curran & Blackburn, 2001; Kautonen & Palmroos, 2010).

A recent study done by Kautonen and Minniti (2014) adopts a different perspective to analyze the effect of age. The authors examine the relationship between subjective (self-perceived) age and entrepreneurship. Subjective age is assessed through the following question – "How old do you feel you are?". Then, the authors transform it into a specific measure calculated as (chronological age–subjective age) / (chronological age). Using a survey on entrepreneurial activities and attitudes of the Finnish population, the authors (Ibid.) conclude that a positive self-perceived age (i.e. feeling younger than individual's chronological age), used as a proxy for ageing well, increases the probability of older individuals who have thought of becoming entrepreneurs to take concrete actions.

Minola, et al. (2016) recent research analyses age differences regarding self-employment desirability and feasibility among different cultures. The authors (Ibid.) propose that a developmental-contextual lifespan perspective (Baltes, Staudinger, & Lindenberger, 1999) should be adopted to analyze desirability and feasibility beliefs

(Ajzen, 1991; Shapero & Sokol, 1982) among different cultures. Minola, et al. (2016) conclude there is a reversed U-shaped (with a peak around the age of 22) relation between changes in entrepreneurial desirability and feasibility beliefs and age.

The second part of this section aims to unveil the relationship between age and other specific determinants related with entrepreneurship. We identify and review the key determinants existent in the literature within this stream of research. In order to categorize the determinants, we use a framework aligned with Parker (2009). The author (Ibid.) uses a variety of explanatory variables associated with: (i) who become an entrepreneur?; (ii) why they become an entrepreneur?; and (iii) what are personal characteristics and environmental factors impacting entrepreneurship?. Parker (2009) focuses on the following determinants: pecuniary and non-pecuniary incentives, human capital, social capital, risk attitudes, over-optimism and other psychological traits, demographic and industry characteristics, macroeconomic factors, and wealth. The present analysis follows this typology and adds another important dimension – 'culture'.

Pecuniary and Non-Pecuniary Incentives

Pecuniary and non-pecuniary incentives influence entrepreneurial attitude. As Schumpeter stressed "individuals are driven by an insatiable craving for hedonist satisfaction, (…), the will to conquer: the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself, (…), joy of creating, of getting things done, or simply of exercising one's energy and ingenuity" (Schumpeter, 1934, p.93-4). Therefore, apart from pecuniary aspects (income, monetary earnings), entrepreneurship can be related to non-pecuniary incentives and motivations such as: lifestyle, being one's own boss, independence and/or job satisfaction (Parker, 2009).

Singh and DeNoble (2003) propose a typology for SEs based on three main motivational profiles: (i) constrained entrepreneurs – those who will to start a business for a long time but for family or financial motives have not done it yet; (ii) rational entrepreneurs – individuals who see entrepreneurship as a way to grow in the career or to earn more and (iii) reluctant entrepreneurs – those who are self-employed involuntary. It is also likely that in certain small business sectors, and particularly in family businesses, a fourth category exists: the lifestyle entrepreneur, who seeks

personal as well as financial success (Giacomin, Guyot, Janssen, & Lohest, 2007). Kautonen (2008), based on a sample of 839 Finnish companies, finds that only approximately 10% of the SEs are driven to self-employment by necessity rather than opportunity – the 'push' motives show clearly lower mean scores than 'pull' motives. According with the author (Ibid.), SEs in Finland are more likely to be constrained or rational, rather than reluctant. Another typology is developed by D' Amours (2009), drawing on 22 interviews to individuals aged 50 and over who had lost, or left, a career job in Canada. The author (Ibid.) propose three main profiles for SEs: (i) early retirees; (ii) competitive non-standard workers and (iii) vulnerable non-standard workers. The first category – "early retirees" – encompass two sub-groups. The first one composed of individuals for whom entrepreneurship is "less out of a need for work income and more out of a desire to take on new and stimulating projects or to occupy their time while also creating a business that they will be able to pass on to their children" (D' Amours, 2009, p. 216). The second group is composed of individuals who, although obtaining a low income with the business and from the pension they receive, feel more satisfied with their current occupation comparing to the previous one. SEs classified within the category of "competitive non-standard workers" perceive entrepreneurship "as a risky but stimulating way to use their skills", thus the focus is on self-fulfillment. The third category is the "vulnerable non-standard workers". This category can also be divided in two sub-groups: whether or not individuals "(...) precarious employment is combined with lack of autonomy, dissatisfaction and even suffering at work" (D' Amours, 2009, p. 218).

Drawing on the literature reviewed, provides an overview of the results related with the "Pecuniary and non-pecuniary incentives", which is the most frequent dimension approached in the literature.

Table 1-4 Pecuniary and non-pecuniary incentives[9]

Key Findings	Authors
Compensate for low retirement funds among older individuals[10]	Mallet & Wapshott, 2015; Parry & Taylor, 2007; Platman, 2003; Wainwright & Kibler, 2013

[9] More details about the papers in Table 1-13.

[10] According to Kibler, Wainwright, Kautonen, & Blackburn (2015), it is necessary to differentiate individuals' financial motivations according to whether they are retired or non-retired. The authors state that the first may look for business as something they might be planning. Whereas the second group,

Seize the last opportunity individuals have to remain active in the workforce	Hennekam (2015)
Overcome age discrimination and negative stereotypes, which may be a common reason leading older individuals to exit a wage and salary job and start a business	Hennekam (2015); Harms et al. (2014)
Search for self-fulfilment	D' Amours, 2009; Kerr, 2017; Logan, 2014; Mallet & Wapshott, 2015; Rolfe et al., 2008; Say & Patrickson, 2012
Find a purpose for life	Harms, Luck, Kraus, & Walsh, 2014; Hodges, 2012; Logan, 2014; Mallet & Wapshott, 2015; Rolfe et al., 2008
Have a better work-life balance occupation	Harms et al. 2014; Kerr, 2017; Rolfe et al., 2008; Wainwright & Kibler, 2013; Walker & Webster, 2007
Reach a higher level of autonomy	Harms et al., 2014; Rolfe et al., 2008; Walker & Webster, 2007
Achieve job satisfaction	Harms et al., 2014; Logan, 2014; Parry & Taylor, 2007; Platman, 2003
Avoid stress	De Bruin & Firkin, 2001
Pursue a hobby	Logan (2014)

Mallet and Wapshott (2015) in a complementary qualitative study, conclude SE show a "deep emotional engagement with their business" (Mallet & Wapshott, 2015, p. 9). The authors (Ibid.) state that money is not the main SEs' motivation and suggest that this strong emotional involvement with the company results from the stage of life individuals are passing through. Entrepreneurs mention a feeling of passion towards his/her company and the fact entrepreneurship may represent the "last chance of really pulling it all together and doing something significant" (Mallet & Wapshott, 2015, p. 10).

Say and Patrickson (2012) sum up the main of SEs' motivations by highlighting that senior entrepreneurship may act as "a vehicle in which they [SEs] could fulfil aspirations of the soul, i.e. achieve recognition, wealth, a sense of well-being, and entrepreneurial freedom while creating a lasting impact on people and society" (Say & Patrickson, 2012, p. 131).

Most of the previous studies draw on qualitative approaches and are based on small samples, not allowing for generalization. To better understand senior entrepreneurial

might aim to delay retirement and/or to balance work and retirement. Moreover, Kibler et al. (2015) highlight that unemployed individuals face higher difficulties to create a venture, comparing to those who benefited from a pensionable income, or those who are employed, or have a second job.

motivations, future research should design specific questionnaires to apply to this segment of entrepreneurs. Another shortcoming is the fact although the role of culture embedded into each specific entrepreneurial setting is important (Harms et al., 2014), only 2 studies (Harms et al., 2014; Zissimopoulos & Karoly, 2007) analyze this type of determinants based on a theoretical approach. While Harms. et al. (2014) apply the Theory of Planned Behavior and the push/pull approach to analyze information on entrepreneurial motivations obtained through the interviews conducted with 16 founders; Zissimopoulos and Karoly (2007) adopt an occupational choice model to investigate the determinants of labor force transitions to self-employment at older ages.

Human Capital

Although the relationship between age and entrepreneurship has already been discussed, in general, within the present section, we now focus on other specific human capital related variables. Investment in human capital is defined as activities related with "schooling, on-the-job training, medical care, (...) and acquiring information about the economic system" (Becker, 1962, p. 9). The human capital perspective has been adopted by entrepreneurship researchers and led to a larger number of studies that analyze the links between human general and specific human capital capital traits and firm creation or performance (e.g. Amaral et al., 2011; Bosma et al., 2004; Davidsson & Honig, 2003; Gimeno et al., 1997). It is important to mention that organizations started by older individuals may benefit from knowledge that was accumulated by their founders throughout their careers (Agarwal, Echambadi, Franco, & Sarkar, 2004).

In the present review of the literature, several studies (N= 19) focus on different variables encompassed by the concept of human capital. These studies help clarifying the relationship between senior individual's human capital and entrepreneurship (Table 1-5). For example, a study by Curran and Blackburn (2001) asked older individuals currently employed to assess the reasons for not preferring moving to self-employment. The authors (Ibid.) show that one of the reasons that may dissuade older individuals from moving from a wage and salary job to self-employment is a perception of having insufficient knowledge (which was observed in 40% of the 125 participants of the study) – this highlights the importance human capital may have towards senior entrepreneurship.

Table 1-5 - Human capital[11]

Key Findings	Authors
Higher educational attainment is positively related to the likelihood of being entrepreneur at a later stage in life	Logan, 2014; Singh (2009); Solinge, 2014; Zissimopoulos & Karoly, 2007
Higher education is not common for most of the senior individuals	Kautonen (2008)
Senior novice entrepreneurs have a higher level of education compared to senior serial entrepreneurs, who mainly possess secondary school attainment	Kautonen, 2008; Tervo, 2014)
People with entrepreneurial experience have a higher probability of becoming entrepreneurs later in life	Fuchs, 1980; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009
For 60% of the SE has been the first entrepreneurial experience	Kautonen (2008)
Experience in management positions plays a positive role on becoming entrepreneur at older ages	De Bruin & Firkin, 2001; Fuchs, 1980; Kautonen et al., 2010; Zissimopoulos & Karoly, 2007)
Previous experience in sales positively impacts firm creation	Fuchs, 1980; Zissimopoulos & Karoly, 2007 (focusing on transitions from wage and salary job to entrepreneurship)
Previous experience in sales has a negative effect on firm creation	Zissimopoulos and Karoly, 2009 (focusing on transitions from retirement to entrepreneurship)
What is critical in starting a business later in life is to have skills that are transferable and demanded by the market	D' Amours (2009)

Kautonen (2008) suggests the different profile regarding the level of education among novice and serial entrepreneurs may be a consequence of professional and academic careers – individuals may have started their business quite young and they probably did not have the opportunity to continue studying.

Among the studies previously presented, we find seven theory-based articles, based on occupational choice models, planned behavior and role theories, and push/pull approach to analyze the role that human capital has on senior entrepreneurship entry. Eleven studies are based on secondary data and nine on primary data. We suggest future research on the topic should rely on more theory-driven analyses, namely by approaching the field based on theory of human capital (Becker, 1962), continuity theory (Atchley, 1989), socioemotional selectivity theory (Carstensen, 2006; Carstensen

[11] More details about the papers in Table 1-14.

et al., 1999). Moreover, new approaches and theory-building are still scarce and should be further developed in the field. More insight on this will be provided in the Discussion section within the present chapter.

Social Capital

Social capital refers to the ability of people to take advantage of their social structures, networks and social relationships (Parker, 2009). These existing ties may be either "strong" (relationships such as one's direct family or close friends) or "weak" (business contacts, acquaintances and members of business networks) (Ibid.).

Singh and DeNoble (2003)'s conceptual study suggests that early retirees have a higher likelihood of becoming entrepreneurs if they have strong networks (Table 1-6). Platman (2003) also highlights the importance social capital has for older individuals.

Table 1-6 - Social capital[12]

Key Findings	Authors
Early retirees have a higher likelihood of becoming entrepreneurs if they have strong networks.	Singh and DeNoble (2003)
"Without these little connections, meaning contacts with the right people in the right places, his [the entrepreneur] approaches were futile".	Platman (2003, p. 13)
A negative perception of society regarding the option of entrepreneurship at an older age can work as an inhibitor to older individuals, and a positive environment is important to get support from family and friends.	Harms et al. (2014)
Family and friends may be more supportive of enterprising activities when the older individual had previous entrepreneurial experience. Work histories of these reference groups also influence the way individuals self-assess their entrepreneurial actions at an older age.	Kibler et al. (2015)
Novice SE sought greater support from reference groups compared to serial SE who have more entrepreneurial experience and thus probably have higher levels of self-efficacy.	Kibler et al. (2015)
The support of family, particularly from their husband/ partner, is of primary importance towards firm creation later in life. The author also finds a positive influence of role models within the family on senior entrepreneurship.	Logan (2014)

There seems to be a gap in the literature regarding the influence of social capital on firm creation among older individuals. Although it is commonly stated (in a

[12] More details about the papers in Table 1-15.

subjective/anecdotal way) that one of the main assets older individuals may bring to entrepreneurship is their accumulated contacts/networks, previous research on senior entrepreneurship has not focused on social capital. This may be due to the difficulty in measuring social capital. Another possible reason is the fact that existing literature is mainly drawn from secondary data or surveys not specifically designed to analyse senior entrepreneurship or social capital.

Wealth

This determinant has been analysed by fourteen – out of forty-eight – articles and key findings are summarized in Table 1-7.

Table 1-7 – Wealth[13]

Key Findings	Authors
There is a significant positive effect of wealth on senior entrepreneurship.	Bruce et al. (2000); Kautonen et al. (2008); Singh & DeNoble (2003); Solinge (2014); Tervo, (2014); Zissimopoulos & Karoly (2007, 2009)
Those individuals who have accumulated more wealth prefer self-employment compared to a wage and salary job	Solinge (2014)
Financial resources can be used to fund retirement, thus wealth can inhibit the start of a venture later in life (since entrepreneurship is associated with risks and uncertain returns).	Singh and DeNoble (2003)
There is a negative relationship between wealth and senior entrepreneurship.	Parker and Rougier (2007) and Platman (2003)
Receiving an inheritance increases the probability of male wage and salary workers to enter self-employment. In addition, according with the authors (Ibid.) in the case of an inheritance received by their spouse, the propensity of men towards entrepreneurship decreases. Zissimopoulos et al. (2007) find that these factors do not play a role on women transition to self-employment.	Zissimopoulos et al. (2007); Zissimopoulos and Karoly (2009),

These different results show that financial capital does not have a unique effect on senior entrepreneurship, it differs according to individuals' characteristics, reinforcing the idea that SEs are not a homogenous group.

The results presented above are almost equally dispersed between theory-based and exploratory articles. Occupational choice models are adopted in six articles (out of

[13] More details about the papers in Table 1-16.

14 articles addressing the current determinant). Three of these articles use a multi-theory approach, gathering occupational choice models with role theory, push/pull approach and human capital theory. Most of the studies (10 out of 14) are empirical, based on quantitative methods and secondary data. Both the use of occupational choice models, the data and methods employed reflect that the relationship between wealth and senior entrepreneurship has been approached mostly from a quantitative perspective. Subjective metrics such as expected monetary earnings or older individuals' perception on wealth could be explored in further research.

Risk Attitudes, Over-optimism and other Psychological Traits

Risk attitudes can be measured in various ways. Most of the authors support the hypothesis that entrepreneurs are significantly less risk-averse than the average (Parker, 2009). However, entrepreneurs might give risk-loving responses because that is what they think interviewers expect them to (Parker, 2009). Additionally, it has long been known that entrepreneurs tend to be innately over-optimistic, mainly about events that are only partially under their control. The psychology literature proposes that optimism tends to be highest when individuals have emotional commitments to outcomes, when they believe they control outcomes, and when they lack evidence about the probability of success on an activity (Parker, 2009).

Risk attitudes, over-optimism and other psychological traits among SEs are analysed by eight (out of forty-eight) studies (Table 1-8)[14]. These studies focus mainly on two dimensions – individuals' relation with risk and self-efficacy. The relationship between risk and senior entrepreneurship entry is not straightforward.

Table 1-8 - Risk Attitudes, Over-optimism and other Psychological Traits[15]

Key Findings	Authors
Wage and salaried individuals may not move to entrepreneurship because they acknowledge it as being too risky.	Curran and Blackburn (2001)
There is no evidence that risk influences transitions into entrepreneurship.	Zissimopoulos and Karoly (2009)

[14] Not included in this systematic literature as it is still a working paper, the work of De Bruin and Firkin (2001:12) concludes that when entrepreneurship "is in an individuals' blood", then age does not influence becoming or not an entrepreneur.

[15] More details about the papers in Table 1-17.

SEs may prefer to acquire (vis-à-vis starting) a business in order to avoid risks.	Ainsworth and Hardy (2008)
Feeling confident about one's ability to become an entrepreneur is of high importance regarding starting a business later in life.	Solinge, 2014; Tornikoski & Kautonen (2009)
Constrained entrepreneurs are likely to score higher in terms of self-efficacy than other early-retiree (rational and reluctant) entrepreneurs.	Singh and DeNoble (2003)

These determinants are addressed through both quantitative and qualitative methods. Out of these ten studies four are theory-based (Harms et al., 2014; Solinge, 2014; Tornikoski & Kautonen, 2009; Zissimopoulos & Karoly, 2007). Again, future research on these topics should be backed up by theory.

Demographic and Industry Characteristics

Another group of explanatory variables is the demographic and industry characteristics (Table 1-9). This section includes a variety of components of analysis – demographic variables (gender, marital status, health, family and friends background) and characteristics of the business itself.

Table 1-9 - Demographic and Industry Characteristics[16]

Key Findings	Authors
SEs are mainly male and married individuals, with children still living at home[17].	Biehl et al. 2014; Weber & Schaper, 2004; Zissimopoulos & Karoly (2007, 2009)
Gender is balanced for the case of senior novice entrepreneurs; however, habitual entrepreneurs are more often male.	Tervo (2014)
Having a spouse that is an entrepreneur increases the probability of starting a business at older ages and having a working spouse increases the probability of starting a business for habitual entrepreneurs.	Tervo (2014)
There is a significant and positive effect of poor health condition on the probability of becoming an entrepreneur.	Wenger & Reynold, 2009; Zissimopoulos & Karoly, 2007
Poor health decreases the probability that workers will move into entrepreneurship.	Parker & Rougier (2007)
Individuals whose spouse has a poor health condition have a lower probability of becoming self-employed compared with those with a good health.	Wenger & Reynolds (2009)

[16] More details about the papers in Table 1-18.

[17] However, two working papers (Bruce et al., 2000; De Bruin & Firkin, 2001), not included in this systematic literature review observe that individuals are less likely to embark on business creation if they still have children at home.

Women whose spouse is in a poor health condition have a lower probability of becoming self-employed compared with those with a good health.	Zissimopoulos & Karoly (2007)
The freelance activity is largely an unprotected in the labor market and, therefore constitutes a barrier to senior entrepreneurship.	Platman (2003)
The bigger the company where older individuals work, the lower their probability to move into self-employment.	Zissimopoulos & Karoly (2009)

Macroeconomic Characteristics

Business cycle and unemployment are dimensions of analysis frequently addressed within the macroeconomic determinants of senior entrepreneurship (Table 1-10).

The business cycle may affect entrepreneurship behavior in two opposite perspectives. On the one hand, when shocks to the economy are favorable, productivity and wealth in entrepreneurship increase, making agents more willing to face risk and become entrepreneurs. On the other hand, when shocks are hostile to the economy, the reverse process occurs (Parker, 2009). In what concerns the relation between unemployment and entrepreneurship, there are again two different angles of analysis. As Parker (2009) discusses, according to the "recession-push" hypothesis, unemployment reduces the opportunities of getting a paid job which can lead people to entrepreneurship; another effect of recessions is that more firms close and there is higher availability of second-hand equipment, reducing barriers to entry; these two effects imply a positive relationship between unemployment and entrepreneurship. On the other hand, according to the "prosperity-pull" hypothesis, with high unemployment, products and services experience a lower market demand which reduces incomes in entrepreneurship and possibly also the availability of capital, while increasing the risk of bankruptcy (Parker, 2009). We identify six studies dealing with the relationship between macroeconomic dynamics and senior entrepreneurship.

Table 1-10 - Macroeconomic Characteristics[18]

Key Findings	Authors
"Early retirees are more likely to become self-employed if they live in a region of integrated clusters of firms and if they have access to lower costs of capital and relevant subsidies".	Singh & DeNoble, 2003, p. 214
The degree of entrepreneurship at the municipality level has a positive influence on the perceived support from both family and friends.	Kautonen et al. (2011)

[18] More details about the papers in Table 1-19.

People living in an urban area moving to self-employment are more likely to be habitual rather than senior novice entrepreneurs.	Tervo (2014)
After the Great Recession in 2009, women are even less likely than after the crisis of 2001 (the Dot.com) to start a firm, compared to men. On the other hand, whereas after the crisis of 2001, men were less likely to move from a wage and salary occupation to self-employment, they show to be more prone to start a firm after the crisis of 2009.	Biehl et al. (2014)

Culture

Culture has a close relationship with ageing and with entrepreneurship (Autio, Pathak, & Wennber, 2013). This determinant is analyzed by in six studies[19] (Table 1-11) within the present literature review.

Table 1-11 – Culture[20]

Key Findings	Authors
Older individuals are acknowledged as unlikely to be successful entrepreneurs and thus should not be encouraged to start a business.	Ainsworth and Hardy (2008)
A positive perception of older individuals' contribution towards the economy decreases their entrepreneurial engagement.	Kautonen (2012)
If older individuals realize that society has a positive perception of entrepreneurial engagement at the age of fifty or over, there is an increase in their likelihood of starting a business.	Kautonen et al. (2011)
"Superstar entrepreneurs featured on television and sought by governments to front various policy initiatives" may negatively influence individuals' evaluation of their performance. This image of the entrepreneur may negatively influence individuals' self-efficacy.	Mallet and Wapshott (2015)
"In low PO cultures such as Italy and Portugal, where the prevalent culture does not buffer the decline in motivation in old age as much, there is an obvious need for 'stronger' programs for older adults to stimulate their self-employment motivations"	Minola et al. (2016)

Senior Entrepreneurship and Firm Performance

The present section focuses on the senior entrepreneurs' firm and its performance, both from a subjective and objective perspective.

[19] Zhang (2008) concludes that social culture openness and diversity (measured by social tolerance index) displays a significant and positive impact on older individuals' probability to become entrepreneurs. The more cultural and socially tolerant a society is, the more likely it is for older individuals to become entrepreneurs, controlling for other factors.

[20] More details about the papers in Table 1-20.

In what concerns the type of business, Block, Thurik, Zwan, and Walter (2013) observed that older individuals have a higher propensity for business takeover versus starting from scratch. Ainsworth and Hardy (2008), in a qualitative approach, also find that older individuals prefer to acquire a business instead of starting it from scratch. The authors (Ibid.) claim this finding is connected with the fact individuals are trying to achieve security (by becoming an entrepreneur through an existing business) and mitigate risk (by investing one's life savings).

Singh and DeNoble (2003)'s theoretical approach provides a heterogeneous conclusion regarding individuals' endeavor towards entrepreneurship. According to these authors (Ibid.), constrained entrepreneurs, compared to rational and reluctant/ involuntary, have a higher likelihood of pursuing more aggressive entrepreneurial opportunities independently of the field of the business[21].

After addressing our first sub-question "What determines senior entrepreneurship?", we now shift the focus to the second sub-question of this chapter– "How do SEs perform?". As shown in Table 1-12, this same research question is addressed in ten peer-reviewed articles (Ainsworth & Hardy, 2008; D' Amours, 2009; Gielnik et al., 2012; Hodges, 2012; Kautonen et al., 2013; Kautonen et al., 2017; Parker & Rougier, 2007; Singh, 2009)[22]. Drawing on Jennings and Beaver (1997) who argue that "*academic attempts at defining success in the small business environment have been either a case of adopting narrow accountancy measures or even more crude quantitative measures such as job creation and growth in turnover*", we distinguish between subjective (e.g. personal satisfaction, perception of income achieved) and objective (e.g. sales, growth, job generation) dimensions of firm performance.

[21] Based on empirical research, Gray (2007) achieves opposite findings, namely, the fact that even though growth orientation declines with age, 38% of business owners over the age of 60 have the strategic objective of continuing to grow their firms, 26% want to maintain their present state, and 12% are averse to growth. Thus, among other options, growing their firms is still the most common option. Gray (2007) also concludes that older individuals are more likely to have a website and to use it for the e-commerce transactions of buying and selling online than younger individuals.

[22] Gray (2004), De Kok et al. (2010) and Li (2015) also analyze firm performance. However, due to the research methodology of this article, they are not included in our analysis. Nevertheless, due to the low number of contributions regarding senior entrepreneurial performance, we must state their preliminary results. The effect of age of the entrepreneur on job creation has also been analyzed by Kok et al. (2010) in an exploratory study. Based on a sample of 849 Dutch entrepreneurs, the authors find a negative indirect effect of age on firm size. This negative indirect effect of age on the firm's size is associated with the lower entrepreneurial self-efficacy and with the higher level of education.

Out of a total ten studies assessing SEs' firm performance, four studies use subjective metrics and six studies assess performance through objective variables. These unbalanced figures may be due, in part, to the more frequent use of objective constructs to evaluate entrepreneurship performance. Only relatively recently, entrepreneurship started to be assessed also at an individual level (Block & Koellinger, 2009; Amoros & Bosma, 2014; Carree & Verheul, 2012; Cooper & Artz, 1995) and firm performance understood with a broader scope, beyond traditional measures for financial performance (Headd, 2003). Considering the need to analyse entrepreneurship at a subjective level (Jennings & Beaver, 1997) and the fact that age is an important determinant of entrepreneurship, future research may benefit from additional knowledge on how and what variables influence individual level entrepreneurial performance.

Table 1-12 - Firm Performance[23]

Key Findings	Authors
There is a negative relationship between age and venture growth.	Gielnik et al. (2012)
Focus on opportunities mediates this relationship; being negatively associated with business owners' age and positively associated with venture growth.	Gielnik et al. (2012)
SEs, compared with lifetime entrepreneurs, do not normally maintain their business for a long time and tend to retire first.	Parker and Rougier (2007)
Public image of entrepreneurship is associated with characteristics possessed by young people (such as optimism, energy, willingness to innovate), which leads older individuals to be recognized as unlikely to be successful[24].	Ainsworth and Hardy (2008)
Older individuals who move from a wage and salary job to self-employment increase their quality of life (compared with those who remain in the same job or change to a new job). However, the impact on level of income is the opposite, exhibiting a negative variation.	Kautonen et al. (2017)
Older entrepreneurs earn more than older paid-employees and that they are significantly more satisfied than younger entrepreneurs (although not reporting differences in income).	Singh (2009)
Women give higher importance to developing meaningful activities, in line with their personal goals and values, applying their skills and experience, rather than focusing on the monetary outcomes of entrepreneurship.	Hodges (2012)

[23] More details about the papers in Table 1-21.

[24] A non-published research conducted by Weber and Schaper (2007) concludes that the age of the business owner has an inverse relationship with success either corporate or personal. Lewis and Walker (2011)'s literature review argue that the potential lower performance of senior entrepreneurs is not aligned with the public discourse that promotes entrepreneurship as a solution for a variety of economic problems.

The least precarious scenarios of senior entrepreneurship are associated with a combination of favorable elements (continuous, unionized trajectory entitling the respondents to retirement income and transferable skills in the repositioning job and the presence of a spouse with his or her own income).	D' Amours (2009)

1.4. Theoretical Approaches to Senior Entrepreneurship

Entrepreneurship is a multidisciplinary field that benefits from disciplines such as economics, psychology, and sociology. These contributions allow a better understanding of firm creation, process, and outcomes. Since this article aims to contribute to the knowledge on older individuals who become entrepreneurs, another discipline is relevant for this analysis – gerontology[25]. This chapter introduces the theoretical approaches within the field of senior entrepreneurship and analyzes their contribution.

Occupational Choice Models

Description. There are different models of occupational choice, depending on upon which factors are considered important to the analysis of individuals' entrepreneurial decision. Thus, they range from the simplest model which considers the individuals as a homogeneous group without risk and argues individuals choose between working for a wage and salary job or being an entrepreneur, to richer approaches which contemplate the existence of risk[26]. Thus, Lucas (1978) considers that individuals differ in their "entrepreneurial ability". On the other hand, Kihlstrom and Laffont (1979) suggests a model in which that individuals differ in the way they bear risk. While for Lucas (1978), the more able choose entrepreneurship and run the largest firms, Kihlstrom and Laffont (1979) hold that the least risk-averse are the ones who do it.

Applicability to Senior Entrepreneurship. Occupational choice models are an appropriate theoretical approach to sustain the topic as they allow understanding of the likelihood of each transition and which factors lie behind the choice between different occupational choices, such as paid employment, retirement, leisure, and volunteer work.

[25] According to Atchley and Barusch (2001), gerontology is "the use of reason to understand aging. Gerontology includes the results of research on aging from all academic disciplines and fields of professional practice".

[26] Such as risk of being unsure of demand for the product developed, risk about their ability to produce the good, risk of future costs of production (Parker, 2009)

Even though literature has been mainly atheoretical, occupational choice models have been one of the most used theoretical approach – Biehl et al., 2014; Kautonen et al., 2013, 2017; Solinge, 2014; Zissimopoulos and Karoly, 2007, 2009.

Most articles adopt the model to analyze the determinants associated with transitions to self-employment later in life (Biehl et al., 2014; Solinge, 2014; Zissimopoulos & Karoly, 2007, 2009). However, there is some specificity that distinguishes them. Whereas Zissimopoulos and Karoly (2007) analyze the American context in the years 1992 to 2000, Biehl et al. (2014) have applied the occupational choice model to explore whether older Americans choose self-employment at different rates during recessions and examine potential differences between women and men. They analyze data between 1998 and 2010. Solinge (2014) analyze transitions, exclusively from retirement, to self-employment based on a sample of 1221 employees of Dutch companies - Unilever, IBM, VendexKBB and civil service. The study concludes that individuals who perceive their retirement to be completely involuntary have higher probability of opting to engage in self-employment compared to wage employment. A study performed by Tervo (2014) compares factors associated with individuals who transition to entrepreneurship who differentiate by entrepreneurial experience (novice vis-à-vis serial entrepreneurs). The study examines transitions of individuals aged 55-74 to self-employment in Finland. The author finds evidence that novice entrepreneurship is less common at older ages compared to habitual entrepreneurship and that these two types of entrepreneurship differ according to financial position, gender and situation of the individual's spouse.

A different approach is adopted by Kautonen et al. (2013). The authors apply occupational choice models to identify the effect of age on different types of entrepreneurship – being self-employed, being an employer, and being an involuntary entrepreneur (they use the term reluctant entrepreneur).

Recently, Kautonen et al. (2017) apply an occupational choice model to analyze the outcomes, in terms of income and quality of life, derived from a transition from a wage and salary job to entrepreneurship vis-à-vis another wage and salary job. The study contributes to enlightening the field regarding the influence that a transition from organizational employment to entrepreneurship may have on individuals' level of income and quality of life. The authors find that older individuals who move to

entrepreneurship, experience a positive influence on quality of life and a negative in terms of income received.

Theory of Human Capital

Description. Human capital theory was originally developed to estimate employees' income distribution from their investments in human capital (Becker, 1962; Mincer, 1974). Becker (1962) defines investments in human capital as activities related with "schooling, on-the-job training, medical care, vitamin consumption and acquiring information about the economic system" (p. 9). Becker (1962) and Mincer (1974) state that education, experience and training are the primary drivers of earnings.

Many individuals learn new skills and improve existing ones while on the job. This learning process, called on-the-job training, enhances productivity (Becker, 1962). This way of learning is different from the one at school because it is done on the job, rather than on an institution specialized in the production of training (Becker, 1962). This activity increases real income of the employee. Furthermore, there are activities such as gathering information about economic and political issues (Becker, 1962) and investing in a better emotional and physical health (Becker, 1962) that also increase income. In order to enhance an individual's health, the individual can improve one's diet or try to seek better working conditions (Becker, 1962).

Becker (1962) distinguishes between general and specific human capital investments. According to this author, general human capital investments would increase the marginal product in several firms, whereas specific human capital investments presumably increase the marginal product of workers in the firm providing the investment. Individuals who have invested in training and become unemployed will wait longer to accept a new job because they want to take value from the investment in schooling they have done (Becker, 1962). However, this behavior may represent a threat according to Mincer and Ofek (1982), as individuals re-entering the labor market will receive lower wages compared to the earnings at the moment of withdrawal. Moreover, the decrease in wages is higher the longer the time absent from the labor force (Mincer & Ofek, 1982).

The human capital perspective has been adopted by entrepreneurship researchers and led to a larger number of studies that analyzes the links between human capital

traits and firm creation, exit and performance (Amaral et al., 2011; Baptista et al.,2014; Bates, 1990; Bosma et al., 2004; Davidsson & Honing, 2003; Gimeno, Folta, Cooper, & Woo, 1997). Bosma et al. (2004) distinguish between general and specific human capital related to entrepreneurial performance. The authors consider general human capital determinants, such as age, education and experience as an employee, whereas specific human capital is divided twofold: entrepreneurship-specific investments (experience of business ownership, experience in activities relevant to business ownership) and industry-specific investment (experience in industry). However, the meta-analytical review of Unger et al. (2011) puts forward the importance of differentiating human capital task and non-task related. According to these authors, task-relatedness human capital has a higher influence on entrepreneurial success than indicators of human capital with low task-relatedness. Task-related human capital refers to activities developed by the business owner, such as owner experience, start-up experience, industry experience, entrepreneurial knowledge. On the other hand, non-task related human capital may be general education, experience as an employee (Unger et. al, 2011). In a qualitative study by Terjesen (2005), the author distinguishes between "embedded career capital" and "embodied career capital". The former refers to acquired knowledge, skills and networks which are useful and transferable among ventures, whereas the latter are mostly applied to the current business.

Lazear (2004) argues that entrepreneurs must have a wider variety of skills, not only focusing on formal education, whereas paid employees should have a more specialized educational background. Lucas (1978) argues that individuals with higher attainment of education will have a higher likelihood of becoming entrepreneurs compared with the less educated. Through formal education, individuals obtain essential abilities to learn about markets and technology and better identify business opportunities (Shane, 2000). Individuals with a higher education level will have a higher likelihood of identifying business opportunities (Davidsson & Honig, 2003; Ucbasaran et al., 2008). Nevertheless, higher levels of general human capital may facilitate transitions into wage employment, implying a reduction of entrepreneurship (Evans & Leighton, 1989).

Applicability to Senior Entrepreneurship. Organizations started by older individuals may benefit from knowledge that was accumulated by their founders throughout their careers (Agarwal et al., 2004). Due to the high influence, human capital has on firm

creation and performance among entrepreneurs and, moreover, the potential accumulated human capital by older individuals, it seems of high importance to take this theoretical approach into account in the analysis of senior entrepreneurship both firm creation and performance, whether it is assessed from a subjective and objective dimension. Nevertheless, as individuals get older they are more likely to have spent some time away from the workplace due to unemployment, maternity or paternity/ health licenses, shifts in a career orientation, these periods translate into knowledge depreciation, a loss of human capital stocks (Neuman & Weiss, 1995; Parker, 2013).

Older individuals are expected to have higher levels of human capital as they were able to accumulate this during life. Tervo (2014) adopts human capital theory to analyze potential differences among individuals in terms of levels of entrepreneurial experience. Tervo (2014) finds evidence that novice entrepreneurship is less common at older ages compared to habitual entrepreneurship. Moreover, he concludes that higher education enhances entrepreneurship for novice, but not for habitual.[27]

In addition, Lucas (1978) suggests that the most skilled employees tend to move to a managerial role later in life. The accumulated professional experience is productive both as an employee and as a manager. According to Becker (1962, p. 48), "most investments in human capital both raise observed earnings at older ages, because returns are added to earnings then, and lower them at younger ages, because costs are deducted from earnings then".

Theory of Planned Behavior

Description. Krueger and Carsrud (1993) claim that entrepreneurial behavior such as becoming self-employed or starting a venture are intentional and, therefore, the best way to predict it is through intentions toward the behavior and not by attitudes, beliefs, personality, or demographics. Intentions are "indications of how hard individuals are

[27] A study by Li (2015) presented in a conference, and thus not included in our systematic literature review due to our criteria for research selection, hypothesis that the age of the founder is positively related to his/her human capital traits. Moreover, due to the fact that Becker (1962) suggests human capital has a positive association with success, Li (2015) expects that the relationship between age of the business owner and venture performance is mediated by human capital traits of the founder. Based on his empirical results, he concludes that work experience has a positive association with founders' age but entrepreneurial experience does not play a part in this relationship. Moreover, he does not find support for the hypothesis that human capital mediates the relationship between the business owner's age and venture performance.

willing to try, of how much of an effort they are planning to exert to perform the behavior" (Ajzen, 1991, p. 181). The intention to perform a specific activity is directly linked to the probability of that behavior to happen.

Theory of Planned Behavior[28] (Ajzen, 1991) is one of the main models of behavioral intentions (there is also Shapero's model of the "entrepreneurial event" (Shapero & Sokol, 1982)). In TPB the intention is influenced by attitude towards the behavior, subjective norm and perceived behavioral control. Attitude towards the behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. Subjective norm refers to the perceived social pressure to perform or not to perform that behavior. Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior.

Ajzen (1991) argues that intentions are presumed to incorporate the motivational factors that influence the behavior. This means that intentions are immediate antecedents of actual behavior (Ajzen, 1991).

Applicability to Senior Entrepreneurship. This theory enables an understanding of what is pushing or supporting seniors' firm creation, distinguishing between several variables. This theory may also be adapted to firm performance as long as success depends on the effort toward a specific goal.

Previous studies (Harms et al., 2014; Kautonen et al., 2010; Minola et al., 2016; Tornikoski & Kautonen, 2009) have adopted this theory to better understand factors pushing and pulling individuals from entrepreneurship.

Tornikoski and Kautonen (2009) and Kautonen et al. (2010) were the first studies to approach the field adopting TPB and their analysis is based on a questionnaire applied to Finnish individuals. Whereas Tornkikoski and Kautonen (2009) analyze the importance different predictors (entrepreneurial attitude, subjective norm and perceived behavioral control) have on intentions among older individuals, the study of Kautonen et al. (2010) examines the influence of different types of professional experience on subsequent intentions and distinguishes between young and older

[28] In TPB the intention is influenced by attitude towards the behavior, subjective norm and perceived behavioral control. Attitude toward the behavior refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behavior in question. Subjective norm refers to the perceived social pressure to perform or not to perform that behavior. Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior.

individuals.

TPB is also adopted by Harms et al. (2014). The authors adopt this theory to analyze the drivers of motivations towards senior entrepreneurship. Based on 16 interviews with founders whose companies have less than 6 years of activity, they categorize data according to the dimensions of analysis of this theory – entrepreneurial attitude, subjective norm and perceived behavioral control.

In order to analyze motivations toward self-employment among individuals of different ages, Minola et al. (2016) performed a study supported by TPB. The authors conclude for the existence of "there is a curvilinear relation association of changes in entrepreneurial desirability and feasibility beliefs with age, patterns are very similar for the 2 curves, and portraying a reversed U-shaped with a peak around the age of 22 (mirrors the lifespan literature)".

Push/Pull Approach

Description. The Push/Pull Approach (PPA) classifies entrepreneurial motivations in two groups (Shapero & Sokol, 1982) – negative and positive factors. Individuals may start a firm due to negative factors ("pushed") such as job loss, lack of income; or due to positive ("pulled") factors such as the desire to exploit market opportunities, for independence and work autonomy (Amit & Muller, 1995).

Applicability to Senior Entrepreneurship. To shed light on entrepreneurial motivations, PPA has been adopted by a few articles (Biehl et al., 2014; Harms et al., 2014; Holienka et al., 2015). A study conducted by Biehl et al. (2014) suggests that "the relative importance of ''push'' factors from the wage and salary sector and ''pull'' factors, such as expected self-employment earnings, might change in recession years". PPA was also adopted by Harms et al. (2014) to analyze motivations of SE. Some push-factors were mentioned: dissatisfaction with the job, lack of security, age discrimination in the labor market, and low level of health. On the pull-factors side, the authors come up with the following findings: increase in autonomy, search for purposeful action, enjoyment and flexibility, income and technology.[29]

[29] Holienka et al. (2015), in their yet to be published study, adopt PPA to differentiate SE by necessity and opportunity driven, by analyzing individual characteristics and perception of societal attitudes towards entrepreneurship. The study focus on 273 early-stage SE in three countries - Poland, Czech Republic, Hungary, and Slovakia.

Lifespan developmental psychology

Description. The individual must be analyzed from its conception into old age (Baltes et al., 1999). According to this theory, the individual does not complete his/her development at adulthood. From the moment of conception and during life, processes of "acquisition, maintenance, transformation, and attrition in psychological structures and functions are involved (Baltes et al., 1999, p. 472)".

Applicability to Senior Entrepreneurship. Since individuals' development differs according to their stage of life, this theory highlights the importance of approaching the field based on this assumption. Thus, due to their stage of development, individuals may exhibit psychological, emotional and physical aspects different from others who are in a different stage of life. This theory is important to support the analysis on SEs' profile and also its influence on firm creation and forthcoming performance.

Minola et al. (2016) propose a lifespan perspective to examine the relationship between age and culture on the motivation towards entrepreneurship, they examine how individuals' beliefs like desirability and feasibility change within age cohorts. A different approach of lifespan theory was undertaken by Gielnik et al. (2012). The authors adopt the mediator variable – focus on opportunities, a concept related to the lifespan theory, to examine the relationship between age of the entrepreneur and firm performance.

Theory of Socioemotional Selectivity

Description. According to this theory (Carstensen, 2006; Carstensen et al., 1999) individuals exhibit different goals depending on their perception of time. As chronological age increases, individuals perceive time as diminishing. This theory argues that individuals at earlier stages of life have a higher focus on acquisition of knowledge compared to a higher focus on emotional goals (higher importance given to close relationships) at a later stage of life.

Applicability to Senior Entrepreneurship. This theory enables a better understanding of the SEs, his/her possible goals to the business and its influence on subsequent firm performance. Based on this theory, we would expect that individuals starting a business

later in life tend to prioritize emotional goals (in opposition to knowledge acquisition). Therefore, their focus on growth-oriented goals mar diminish, and, consequently, achieving a lower financial performance compared to younger individuals (Hessels et al. 2008).

Theory of Disengagement/ Activity

Description. This theory was developed by Havighurst in 1964 and proposes that older individuals who maintain the roles and activities they have developed during their lives exhibit higher satisfaction (Estes, 2011). Thus, it suggests that remaining active later in life has a positive influence on satisfaction. The theory appears mostly as a response to the then influential theory of "disengagement", which views old age as an inevitable period of withdrawal from roles and relationships (Cumming, Dean, Newell, & McCaffrey, 1960).

Applicability to Senior Entrepreneurship. This theory may support the option for becoming an entrepreneur later in life, due to the fact that entrepreneurship may be regarded as a possibility to remain active later in life. According to this theory, it is expected that higher levels of activity later in life leads to higher satisfaction with life. Considering entrepreneurship an option among other activities, we could expect that individuals who choose to remain active through entrepreneurship exhibit a high level of satisfaction with their lives, ceteris paribus.

Theory of Continuity

Description. Theory of Continuity is a derivation from theory of activity. "A central premise of Continuity Theory is that, in making adaptive choices, middle-aged and older adults attempt to preserve and maintain existing internal and external structures and that they prefer to accomplish this objective by using continuity" (Atchley, 1989, p. 183). The idea is that individuals deal with changes occurring in their lives by being coherent and consistent with their past, their prior history.

Atchley (1989) argues for the existence of some types of continuity, mainly the author divides it in two dimensions – internal and external continuity. Internal continuity is what individuals identify as being his/her personal experiences, affects, preferences, and skills. To preserve internal continuity may have potential benefits for older

individuals, such as, to apply own formal and informal knowledge accumulated during life, feel a "sense of ego integrity (Atchley, 1989, p. 185) due to the fact that his/her life has been consistency, being satisfied with life achievements. On the other hand, external continuity is seen as a "remembered structure of physical and social environments, role relationships, and activities" (Atchley, 1989, p. 185). External continuity may have at least two perspectives, on the one hand, people face social pressure to be consistent with their past roles; on the other hand, it is positive for individuals to continue feeling included in a specific group.

Another relevant aspect mentioned by the theory developed by Atchley is that older individuals may keep developing similar tasks within already known environments because they value remaining in a "comforting routine" and having "a familiar sense of direction" (Atchley, 1989, p. 188). This is associated with higher satisfaction due to the fact that they are "exercising mastery and the value of experience and practice in preventing and minimizing the deleterious effects of physical and psychological aging (Atchley, 1989, p. 188)". Furthermore, continuity can also support the idea of creativity as long as this is seen as an outcome of a continuous effort (Atchley, 1989). "When adults feel the need for stimulation, they look first to domains in which they have proficiency and for which they have a preference" (Atchley, 1989, p. 188).

"Gradually, by confronting both successes and failures and incorporating them into their theory of self, developing adults come to more readily accept themselves as they are, not as they might like to be. This self-acceptance supports inner continuity" (Atchley, 1989, p. 186).

Applicability to Senior Entrepreneurship. It would be an asset to analyze whether entrepreneurship may be an activity enabling a high level of continuity and which factors are associated with this. Based on this theory, we would expect that individuals starting a business later in life in the same area/field as their previous professional experience (meaning that accumulated formal and informal knowledge is applicable and, in addition, they remain in the same environment), enabling both internal and external continuity, would experience higher satisfaction and, probably, reach higher firm performance. In line with this, we would expect that, ceteris paribus, individuals for whom entrepreneurship is not a continuation of their previous occupations or lifestyle, would exhibit lower levels of satisfaction.

Other

Other theories have been adopted by previous literature, however with lower frequency than the ones above described. Thus, we will briefly introduce the following theories: theory of time allocation, upper echelons theory, entrepreneurial event, self-determination theory, and role theory.

Lévesque and Minniti (2006) developed the first conceptual contribution on the SER field. The authors draw their study from Becker's theory of time allocation (1965), which postulates that individuals choose how to spend time between income producing and leisure activities. The authors propose that age, representing a stage of life, influences the way individuals choose between income producing or leisure activities.

Solinge (2014) analyzes transitions to self-employment by adopting role theory (e.g. Ashforth & Mael, 1989) to argue that retirement is a process of role transition and thus to avoid facing an abrupt loss of social role, individuals may seek bridge employment (Wang et al. 2008). Minola et al. (2016) analyze the relationship between age and culture by adopting the entrepreneurial event model (Shapero & Sokol, 1982). This model considers desirability and feasibility beliefs as antecedents of entrepreneurial effort to perform an activity.

To analyze the relationship between age and financial performance of the firm, Gielnik et al. 2012 base their model on the upper echelons theory (Hambrick & Mason, 1984), which postulates that firms with younger top managers experience higher growth rates because age negatively influences performance. A different perspective is followed by Kautonen et al. (2017) to analyze the influence transitions to self-employment have on the variation of quality of life and income. The concept of quality of life is analyzed by adopting the self-determination theory (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001), according to which well-being is dependent on the satisfaction of individuals' psychological needs.

1.5. Discussion and Future Directions

Our review of SER reveals abundant opportunity for future inquiry. Following the structure of the above review, we organize our discussion for future directions with respect to: (i) evolution of the topic, (ii) theory approaches, and (iii) focus of SER.

1.5.1. Evolution of the topic

The premise of SER is that age can substantially influences entrepreneurship. However, it is not possible to fully understand how age impacts the process without consideration of the economic, social and cultural conditions and circumstances – thus making the study of context an important consideration. To illustrate this, Minola et al. (2016) concludes that culture is an important factor influencing firm creation and that countries' characteristics influence this and policy makers should take it into account. Older individuals frame problems in different ways within different countries, highlighting the need for future studies to explore how varying samples leverage age to identify and exploit opportunities and what explains these differences.

An unequal dispersion exists among observations associated with the first and the second research question. Most of the articles are related to the first research question and the analysis of senior performance, the second research question, is underrepresented[30]. This shows that literature has focused mainly on entry and not yet on the outcomes of senior entrepreneurship. This result is in line with the observation by Blackburn and Kovalainen (2009) who state that senior entrepreneurship is still a young topic within the discipline of entrepreneurship and that it deserves attention and additional contributions to better understand this phenomenon.

A limitation of existing research is that it is based on general databases and, thus, not specifically designed to analyze variables of interest to the field. Thus, studies are mainly focused on variables such as human capital, pecuniary and non-pecuniary incentives of entry. They do not encompass variables such as social capital, subjective age, and perception of personal success. Methods applied are different among studies analyzing a specific determinant. For example, whereas articles contributing to the understanding of the relationship between pecuniary and non-pecuniary incentives have mainly been developed based on a qualitative basis and with primary data, the opposite is found for the relationship with human capital traits. This may be a consequence of the ease of finding these latter indicators in public databases and the absence of information regarding motivations related to senior entrepreneurship. Thus, in this regard, future research should overcome this gap by developing primary data on

[30] Eight studies provide insights on both research questions.

human capital indicators, focusing more on outcomes[31], such as knowledge and skills, than on investments (indicators easily accessed in public databases). To analyze entrepreneurial motivations, primary data should be collected using a quantitative approach and thus allowing generalization.

1.5.2. Theory Approaches

SER has mainly been approached on an exploratory basis. Studies that integrate theories and, even better, multiple theories are needed as the senior entrepreneurial process is a complex phenomenon and thus adopting different lenses to analyze it will be beneficial. Occupational choice models and theory of planned behavior were the most adopted theoretical approaches of SER. The former was mainly adopted to analyze the likelihood of a transition and the determinants associated with transitions to self-employment or entrepreneurship (exception for Kautonen et al. 2017), and the latter to analyze factors influencing entrepreneurial decision.

Older individuals are supposed to have had more time to accumulate human capital (Becker, 1962). However, human capital may also depreciate (Neuman & Weiss, 1995; Parker, 2013). These theoretical and empirical contributions highlight the importance of future studies to approach the field by adopting a learning theory (in line with Unger et al. (2011) and Marvel, Davis, & Sproul (2014)). This is even more relevant for SEs due to their larger life span. This may explain why Li (2015) did not find support for a mediating effect of human capital on the relationship between age and firm performance (it could be that learning, not human capital traits should be analyzed). Human capital investments (as opposed to outcomes) are more often included in studies due to its ease of measurement and the availability in databases.

To date, theoretical perspectives have mainly been adopted to analyze senior firm creation, only two theory-based papers (Kautonen et al., 2017; Gielnik et al, 2012) contribute to enhancing knowledge regarding the outcomes of senior entrepreneurship. Future research should focus on this dimension and potentially draw on already adopted theories but considering senior entrepreneurial outcomes as dependent variable. Thus,

[31] In line with the suggestion of Unger et al. (2011, p. 353) – "Our results suggest that future research should address learning processes and should focus on learning from experience. Such a learning perspective can explicate the processes that lead to acquisition of knowledge and skills from experience".

there are some potential avenues for research, such as: (i) to adopt theory of planned behavior to clarify the relation between intentions, such as, of growth/ work-life balance/ survival and firm performance (due to the influence goals have on subsequent activity (Hessels et al., 2008); and, (ii) push/pull approach could also be adopted to analyze the influence of entrepreneurial motivations on subsequent firm performance. Theories, such as, theory of activity (Estes, 2011), theory of continuity (Atchley, 1989), and theory of socioemotional selectivity (Carstensen, 2006; Carstensen et al., 1999) might also be helpful to improve our understanding on senior entrepreneurship performance. Among previous studies, only Gielnik et al. 2012 and Kautonen et al. 2017 have adopted approaches considering specific characteristics, motivations, and goals of older individuals. This is of higher importance due to the stage of life of SEs.

Another promising area for multi-theory approaches in senior entrepreneurship research is the need to analyze entrepreneurial performance from a subjective and objective level. Success must not be exclusively considered from a financial point of view (Jennings & Beaver, 1997). At an objective level, two potential theoretical approaches/ explanations to the relationship between age and firm performance is suggested. Firstly, according to Becker (1962), we would expect a higher level of human capital to lead to a higher financial performance of the firm. However, as age increases there is a decrease in the financial performance of the firm[32] (Gielnik. et al, 2012), possibly due to the potential depreciation of human capital (Neuman & Weiss, 1995; Parker, 2013) and because individuals' goals change with time, moving from knowledge oriented to emotional oriented (Carstensen, 2006; Carstensen et al., 1999). Secondly, according to the theory of planned behavior, intentions are the precedent of behavior (Ajzen, 1991). Thus, if the goal (entrepreneurial attitude) of the individual is not growth-oriented, this has a negative effect on subsequent financial performance (Hessels et al. 2008). At a subjective level, considering business satisfaction could be operationalized by adopting procedural utility. This concept shows the importance of analyzing outcomes derived from processes (Benz & Frey, 2008; Frey et al., 2004). Block and Koellinger (2009) adopt the concept of procedural utility to analyze satisfaction with monetary and non-monetary aspects extracted by the business owners. Furthermore, due to the stage of

[32] In line with literature not included in this systematic literature review – De Kok et al., 2010; Li, 2015.

life of SEs, we suggest gerontology theories should also be considered. Active engagement theories postulate that remaining active later in life allows higher satisfaction (contrary to the disengagement theory of Cumming et al. (1960)). More specifically, "a central premise of Continuity Theory is that, in making adaptive choices, middle-aged and older adults attempt to preserve and maintain existing internal and external structures and that they prefer to accomplish this objective by using continuity" (Atchley, 1989, p. 183). The idea is that individuals deal with changes occurring in their lives by being coherent and consistent with their past, their prior history. Future research could benefit from integrating these theories to better understand senior business satisfaction.

Kautonen et al. (2017) adopt occupational choice model, normally used to analyze the likelihood of a transition to self-employment and factors associated, to analyze the effect of a transition on the variation of quality of life and income.

1.5.3. Focus of Research Stream

The primary focus of the reviewed articles was firm creation by older individuals. Our findings show that there are relatively few examinations of the subsequent stages of the entrepreneurship process.

The probability of being an entrepreneur increases with age (Blanchflower et al. 2001; Burr & Mutchler, 2007; Evans & Leighton, 1989), however the willingness decreases (Lévesque & Minniti, 2006; Zissimopoulos & Karoly, 2007). Nevertheless, the existence of a straightforward relationship between age and entrepreneurship engagement is challenged by some studies (Kautonen et al. 2013; Kautonen & Minniti, 2014; Minola et al. 2016). Firstly, a study conducted by Kautonen et al. (2013) concludes that the effect of age depends on the concept of entrepreneurship used (business owner, self-employer or reluctant/ involuntary entrepreneur). Secondly, Kautonen and Minniti (2014) find that a positive self-perceived age enhances the likelihood of becoming a SE. Thirdly, Minola et al. (2016) conclude there is a curvilinear association of changes in entrepreneurial desirability and feasibility beliefs with age, patterns are very similar for the two curves, and displaying a reversed U-shaped with a peak around the age of 22. These three studies show that the effect of age on becoming an entrepreneur is not straightforward, it is subject to aspects such as the concept of entrepreneurship

adopted, the measure for age (chronological age vis-à-vis self-perceived age), and cultural aspects. To shed light on the lack of willingness exhibited by older individuals regarding the option of starting a firm later in life, we may follow what some theories postulate. Furthermore, Walker (2006) states that chronological age is not an effective factor explaining performance. "An active ageing strategy should be "ageless" in the sense that it should cover the whole of the life course. This is not to deny the realities of ageing, but active ageing is concerned with how everyone ages and not only with older people" (Walker, 2006, p. 86). More than age, Kautonen and Minniti (2014) suggest that what matters is subjective (self-perceived) age instead of chronological age. Based on a sample of 241 individuals who thought about starting a business they conclude that having a positive subjective age bias has a significant positive effect on the likelihood that individuals who have thought about self-employment in their late forties and throughout their fifties will in fact engage in start-up activities. We think future approaches could extend this analysis to examine the relationship between subjective age are entrepreneurial goals' orientation. This idea would expand the theory of socioemotional selectivity that postulates that, due to their specific life circumstances, individuals may have a different perception of their future life span and thus exhibit different goals for their life and, consequently, for their business (Carstensen, 2006; Carstensen et al., 1999).

This survey reviews the characteristics of SE and a main profile may be depicted. Although, SEs are not a homogeneous group, it seems that most SEs have the following characteristics: they are more likely driven by non-pecuniary motivations than pecuniary, they are mostly male, married, and with higher level of education attainment, they have previous entrepreneurial experience, and wealth and they display high levels of self-efficacy.

Three articles have developed a typology of SE – D' Amours (2009), Kautonen and Minniti (2014), and Singh and DeNoble (2003). These three articles identify different types of motivations to start a business at an older age. Kautonen and Minniti (2014) differentiate between the type of business (either self-employed or employer). We suggest a typology of SEs should be designed associating determinants (e.g. pecuniary and non-pecuniary aspects, human capital traits, wealth) and firm performance (both at an individual and firm-level). This analysis is of primary importance to enhance the

knowledge on the topic for researchers and policy-makers.

We now move to specific factors deserving our attention and/or reflection. Previous literature analyzing entrepreneurial motivations of older individuals have mainly been based on small samples and thus, lack the power of generalization. Among the studies analyzing this relationship, the desire of self-fulfillment, the will to undertake a purposeful action, to have more autonomy, to search for higher satisfaction were the most referred motivations. Financial aspects are important but it seems that the main drivers are non-pecuniary oriented. These results were based on exploratory studies, only two studies are theory-based and on a qualitative analysis. We suggest that researchers analyzing this relation should approach the topic based on gerontology theories such as theory of activity and on a more quantitative basis, enabling a more general conclusion.

Furthermore, more than analyzing what drives older individuals to start a business later in life, it is of primary importance to understand what triggers individuals to deal with such a psychological demanding activity such as entrepreneurship, an activity which depends on him/her and where he/she defines the rules and the orientation of the project. Those who start due to necessity probably do not as often need a specific trigger event, as they already have a strong factor. However, for those who do not do the transition out of need, the trigger is not clear - why, when and what. Future studies should add to our understanding of what the triggers of senior entrepreneurship are.

Previous studies show that entrepreneurial experience (Fuchs, 1980; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009), experience in management roles (De Bruin & Firkin, 2011) and in the business sector (Baucus & Human, 1995; Say & Patrickson, 2012) is positively related to starting a company later in life.

A subgroup seems to exist among SEs, those differing in their entrepreneurial experience – novice vis-à-vis serial SEs. Regarding the level of education, Kautonen (2008) concludes that senior novice entrepreneurs have a higher level of education compared to senior serial entrepreneurs, who mainly possess secondary school level qualifications. Furthermore, Kibler et al. (2015) show that senior novice entrepreneurs sought greater support from reference groups compared to serial SEs. The finding of Kibler et al. (2015) potentially follows the argument of Atchley (1989) – who argues that individuals with higher levels of continuity, whether internal or external, age better.

Novice and serial SEs may be compared based on Atchley (1989)'s theory and we would expect that serial SEs have higher levels of confidence on their potential firm performance (since it is not something new), possibly, they may already experience most of the challenges associated with starting and developing a firm, and their reference groups acknowledge them as entrepreneurs. For those, to whom entrepreneurship is a new activity, most likely they have to face culture barriers regarding the idea of becoming an entrepreneur later in life (Ainsworth, 2015; Mallet & Waphshott, 2015) and, moreover, as they do not master the activity so well they will ask for more support among reference groups.

Another focus of this literature review was the relation of age and firm performance. We conclude that SER has not yet deserved a fruitful contribution on this point, considering both subjective and objective levels. Based on a few previous studies, evidence shows that as age increases, there is a decrease in firm performance (De Kok et al., 2010; Gielnik. et al, 2012; Li, 2015). Firstly, De Kok et al. (2010) concludes low self-efficacy of SE has a negative influence on firm size. Secondly, Gielnik et al. (2012) analyzes the relation between age and firm performance and the mediating effect of mental health and focus on opportunities. As mental health has a positive influence on focus on opportunities, which mediates the relationship between age and firm performance, the negative influence of age on firm performance may be mitigated through this mediation. Thirdly, Li (2015), on a yet to be published study, concludes that there is a negative relationship between professional experience and venture performance. These findings are of special relevance for policy makers and institutions supporting SE due to their potential to support interventions aiming to improve individuals' mental health and levels of self-efficacy. However, as these empirical results are important, more research is needed to enhance our knowledge of the relationship between age and firm performance and potential underlying factors. In line with what happens with the effect of age on senior entrepreneurship entry, which does not exhibit a straightforward relationship and leads to different results according to which type of entrepreneurship[33], definition of age[34] (chronological age vis-à-vis self-perceived age),

[33] Kautonen et al. (2013)
[34] Kautonen and Minniti (2014)

or culture[35] is analyzed. We suggest similar approaches should be adopted to examine the effect of age on firm performance. The main contribution these studies put forward is that there is a negative relationship between age and firm performance. We discuss two potential causes. Firstly, a lower firm performance may be a consequence of a lack of orientation to performance of the older individual explained by theory of socioemotional selectivity (Carstensen, 2006; Carstensen et al., 1999), which suggests that older individuals value more emotional aspects compared to knowledge acquisition ones. Thus, based on this approach we would expect that the goals a SE defines for his/her business are more often non-financial than financial, due to his/her stage of life. Secondly, according to the theory of planned behavior, we know that intentions are the precedent of behavior (Ajzen, 1991). Thus, if the goal of the individual is not performance oriented (entrepreneurial attitude) nor does he/she have a high level of self-efficacy (De Kok et al., 2010) this may lower subsequent firm performance. This argument is in line with Hessels et al. (2008), for who entrepreneurs who start a venture because they want to earn more money than in wage-employment, can be expected to behave differently than individuals who create a new venture to be more able to combine work and household responsibilities. Thirdly, the result achieved by Li (2015), according to whom professional experience is negatively associated with firm performance, is not in line with the theory of human capital (Becker, 1962). According to this theory, we would expect that a higher level of human capital leads to higher performance. This may not happen due to the following reasons: (i) capital depreciates during life (Neuman & Weiss, 1995; Parker, 2013); (ii) human capital is different from learning, the latter having a higher strength (Unger et al. 2011); human capital can only result in high growth if the entrepreneur has the aspirations to expand the business (Wiklund & Shepherd, 2003). Fourthly, based on the result achieved by Gielnik et al. 2012, according to whom mental health is a mediator of the relation between age and opportunities identification, awareness should be paid to the promotion of entrepreneurship among older unemployed individuals if there is a strong and negative influence of being unemployed on mental health (see Frasquilho et al., 2015 for a literature review). Being unemployed before starting a company influences satisfaction

[35] Minola et al. (2016)

with the business (Block & Koellinger, 2009 and Carree & Verheul, 2012 for entrepreneurs in general). Research focusing on this vulnerable group should be developed to analyze specific strengths and weaknesses. If unemployment is the main incentive for setting up a business, new founders have a lower impact on economic growth and a lower propensity of positively contributing to job creation (Andersson & Wadensjo, 2006; De Kok et al., 2010).

Firm performance on a subjective dimension is another stream of research of primary importance to enhance the knowledge on senior entrepreneurship and its potential impact, supporting both researchers and policy-makers. Firm performance must be analyzed from an individual's perspective, considering personal satisfaction as an indicator (Carree & Verheul, 2011; Cooper & Artz, 1995). Kautonen et al. (2017) focus on individuals' outcomes (in terms of quality of life and income) derived from a transition to entrepreneurship later in life. However, more research is needed to complement this analysis: detailed information on which factors influence individuals level of achievement in terms of quality of life and level of income would be an advantage; analyzing the impact of the potential discrepancy between motivations and outcome achieved on quality of life (Kautonen et al., 2017); analyzing the outcomes achieved at other stages of the business life cycle (instead of exclusively on a preliminary stage of the company); and examining outcomes based on procedural utility theory (Frey et al., 2004) because it focus on the utility exhibited with the process and distinguishes between financial and non-financial benefits of an activity. We suggest that the analysis of firm performance, at a subjective level – business satisfaction, should encompass gerontologic theories that postulate that individuals' satisfaction is associated with being active in life (Estes, 2011), being active by remaining coherent and consistent with previous stages of life (Atchley, 1989), leaving social roles and focusing on their inner self (Cumming et al., 1960). Moreover, socioemotional selectivity theory postulates that older individuals are more focused on emotional oriented goals than knowledge acquisition ones (more dominant in younger individuals) and that the perception of lower life span influences individuals' goals (Carstensen, 2006; Carstensen et al., 1999).

Given that age is one version of identity (others are gender and ethnicity) with which most of us will be forced to engage at some point, it is important to learn about the implications for those subjected to it (Ainsworth, 2015), we turn our attention to

figure A-1 as an example of a research agenda for SER.

1.5.4. Practical Implications

The research suggests that senior entrepreneurship should not be viewed as a homogeneous group. The diversity of their backgrounds, motivations, culture they belong to and circumstances affect individuals differently. The effort we had to analyze and systematize previous literature on senior entrepreneurship hopefully provides food for thought for policy-makers and support agencies. These entities must tailor their information and advice to meet the needs of different groups – a 'one size fits all' approach will be inappropriate.

Lévesque and Minniti (2006) enumerate some factors influencing entrepreneurship. They distinguish between contextual (education, taxation systems, availability of financing, labor markets, quality of existing infrastructure) and inherent factors (such as age, alertness, risk aversion, tolerance for ambiguity, prior experience). The former refers to characteristics of the socio-economic environment within which entrepreneurial decisions are made. The latter are concerned with characteristics of the individual. The authors state that "while contextual variables may be altered relatively quickly by exogenous shocks such as policy interventions, inherent factors may not" (Lévesque & Minniti, 2006, p. 178). Thus, culture is a relevant and difficult aspect to influence in an individual's life. So, public policy will only have an impact in the long run. Nevertheless, government policy should focus on creating a more positive age-related environment if it is to have a positive effect on how individuals assess the suitability of entrepreneurship among older people. This could potentially impact both the support individuals provide to others who desire or need to create a business and on how they see the possibility of moving to entrepreneurship (Ainsworth, 2015). Furthermore, according to Minola et al. (2016), policies supporting senior entrepreneurship must be culture-specific.

Regarding entrepreneurial education, the European Commission considers that an entrepreneurial attitude should be developed and supported during individuals' life. However, this does not refer exclusively to the creation of a business but also to the active participation in the socio-economic life and getting significant satisfaction from that (Kurek & Rachwal, 2011). The human resources management of companies should

also consider the fact that careers are changing from a classical model of three stages (education, full-time employment and full-time retirement) to a time of a multi-stage model, where people may combine periods of partial wage and salary jobs with self-employment, or training and partial employment, among other options. In line with this model that must follow the fact that people have longer working lives, the HRM should also encompass learning opportunities/ policies that contribute to an increase of human capital skills but also promote self-knowledge, work-life balance /care for workers' health and financial benefits (Gratton & Scott, 2017).

Literature has pointed out different typologies of SEs. Firstly, Singh and DeNoble (2003) argue for the existence of three types – constraint, rational and reluctant. Secondly, Kautonen and Minniti (2014) put forward that SEs should be distinguished according to whether they are business owner, self-employed or a reluctant entrepreneur. There is also the well-known distinction between push and pull factors (Amit & Muller, 1995) or the approach of GEM – necessity vis-à-vis opportunity driven (Reynolds, Hay, Bygrave, Camp, & Autio, 2000). Thus, even if there is more than one type of entrepreneur, there is a group that is clearly vulnerable – the involuntary ones. Previous research shows that whereas funding may not be a need for a retiree or someone who is doing the transition between wage and salary job to entrepreneurship voluntarily, it is probably one for those transitioning from unemployment to self-employment (Ainsworth, 2015). Furthermore, periods of unemployment may be associated with a depreciation of human capital (Neuman & Weiss, 1995; Parker, 2013) and older people tend to be out of work for longer periods than younger individuals (OECD, 1998). In this case, if older individuals start a business due to lack of alternatives, they may lack the skills required to manage self-employment and, thus, providing training may enhance their performance and subsequent satisfaction with entrepreneurship (Ainsworth, 2015). The focus on a vulnerable group of entrepreneurs – the involuntary entrepreneurs, leads to another relevant aspect of those who are possibly pushed to entrepreneurship – their lower mental health. We know that long periods of time in an unemployment condition decreases individuals' mental health (see Frasquilho et al., 2015 for a literature review). Thus, older individuals pushed to start a business may exhibit a vulnerable psychological condition. Due to the fact that Gielnik et al. (2012) find that mental health and a focus on opportunities could lead to a greater

growth-oriented business among older people, this possibility of lower mental health among unemployed individuals must be tackled. Thus, as Ainsworth (2015) suggests "training and development interventions that promote psychological well-being and encourage a future orientation among older people may affect the type of business older people pursue". According to the Warr's vitamin model (1987), there are nine specific environmental factors ('vitamins') which are associated with well-being (opportunity for control, skill use, external goals, variety, environment clarity, availability of money, physical security, interpersonal contact, and a valued social position"), these must be addressed by policy-makers and/or agency interventions.

Finally, government policy-makers and technicians should assess senior entrepreneurship from a broad perspective and not exclusively according to financial metrics of success. SEs are more likely to employ themselves uniquely. However, the fact that they create their companies may be positive in different aspects: (i) entrepreneurship at an older age might be the unique possibility for those on an unemployment situation; (ii) SEs have higher success rate in starting new business than the rest of the population (Ainsworth, 2015); (iii) "older people enter self-employment for various non-monetary benefits such as greater independence, autonomy and control, flexibility and the chance to be creative and appear to enjoy higher rates of satisfaction than those in paid employment. This suggests that an evaluation of its overall utility needs to take these social benefits into account" (Ainsworth, 2015, p. 249).

1.6. Conclusion

Our systematic review of the SER stream identifies the current state of the field, promising research gaps, and a path for future exploration. We analyze the literature by focusing on two research questions – (i) *What determines senior entrepreneurship? and* (ii) *How do senior entrepreneurs perform?.*

We find that this stream has grown considerably and put forward promising areas for future exploration across theoretical perspectives, contexts, methods, and evidence. We draw special attention to the need for more and better evidence on the relationship between senior entrepreneurship and performance, and underlying differences due to special circumstances (e.g. entrepreneurial motivations, employment status previous business start-up) among SEs. Much can also be gained from a more sophisticated

measure of age (e.g. self-perceived age vis-à-vis chronological age). We encourage scholars to explore SER based on theory (compared to the mostly exploratory approach of current articles), developing more theory-testing and theory-developing articles.

To guide future scholarship, we deconstructed determinants (e.g. human capital, (non)-monetary aspects, demographic characteristics) associated with entry and performance of SEs and set forth a framework of analysis of the field which provided a more detailed lens than previously available. This should allow for the development of a research agenda for senior entrepreneurship along the entrepreneurial process to enhance and guide the development of this stream.

We believe the pursuit and development of this stream represents an important contribution both to the academy and to policy-makers. We hope this effort of reviewing and discussing current literature motivates future scholarship and insights into SER.

1.7. Appendix

Table 1-13 Articles associated with Pecuniary and non-pecuniary incentives

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable Pecuniary and non-pecuniary incentives	Main Findings
Cannon and Kurowska, 2013	50+	30; entrepreneurs, UK	nascent entrepreneur	Non-pecuniary incentives	Men aged 50 and over are consistently more likely to be reluctant entrepreneurs while women, whether start-ups, self-employed or active enterprises, are more likely to be rational or lifestyle entrepreneurs while there is little difference among constrained entrepreneurs
D' Amours, 2009	50+	22; workers who had lost or left a career job during the period 1993-98; Canada; 1990-00	nascent entrepreneur	Non-pecuniary incentives	Identify three main profiles of senior entrepreneurs: early retirees, "competitive" non-standard workers, and vulnerable non-standard workers
De Bruin and Firkin, 2001	50+	46; new entrepreneurs completed a course w/ the Small Business Unit of the Capital Development Agency; New Zealand; 1994	nascent entrepreneur	Non-pecuniary incentives	To avoid the stress and demands of previous employment
Fuchs, 1982	58 - 67	2.500; white urban males; USA; 1969,1971-73	nascent entrepreneur	Non-pecuniary incentives	W&S that work <35hours or more than 50hrs a week are more likely to switch to SE
Harms et al., 2014	50+	16; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	Non-pecuniary incentives	Push-factors: insatisfaction with previous job, lack of security, job market discrimination and low level of health. Pull-factors: the will to increase the level of autonomy, search for puposeful action, enjoyment and flexibility and the ability to make your own schedule, financial incentives and the role of technology.
Hennekam, 2015	51-67	43; older self-employed creatives that are members of the trade union FNV-KIEM, The Netherlands		Pecuniary incentives	Many interviwees explained that they were pushed toward retirement and that the only way to continue being active in the workforce was to start for a business themselves. Age discrimination, negative stereotypes and prejudices were common reasons to leave W&S jobs and become self-employed; becoming unemployed seemed to be a trigger to self-employment, not because they wanted but because they struggled to find a new job;
Hodges, 2012	46-60	100; women who moved into SE from organizational employment; UK; 2009-11	nascent entrepreneur	Non-pecuniary incentives	Some women change to SE due to a dissatisfaction with corporate world and, on the other hand, as a way to capitalize their skills and search for a more meaningful activity.
Kautonen, 2008	50-64	839; companies started between 2000-06; Finland	nascent entrepreneur	Non-pecuniary incentives	OE in Finland are, in Singh and DeNoble's (2003) terms, more likely to be constrained or rational entrepreneurs becoming self-employed mainly due to pull factors, rather than reluctant entrepreneurs.

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable Pecuniary and non-pecuniary incentives	Main Findings
Kautonen et al. 2008	50+	2; managers and 1098 individuals who contacted PRIME	nascent entrepreneur	Pecuniary incentives	Reasons for delaying the start-up decision: women have difficulties in getting start-up money more often than men (50% vs 33%)
Kerr, 2017	50+	197; individuals who are both active in the workforce and those who have fully retired	nascent entrepreneur	Non-pecuniary incentives	Work-life balance and personal fulfilment were both indicated by later-life participants as significantly higher motivators for becoming entrepreneurs and continuing work.
Logan, 2014	50-62	10; female entrepreneurs which businesses were growing, profitable and employed staff; UK	nascent entrepreneur	Non-pecuniary incentives	Motivations: personal fulflment/ self-actualization, to make life better for other groups in society, pursuing a hobby/creative outlet, frustrated with their existing careers; the trigger is that families need them less;
Mallet and Wapshott, 2015	50+	2; entrepreneurs; UK;	nascent entrepreneur	(Non)-pecuniary incentives	Entrepreneurs show a deep emotional engagement with their business, money not being the driver.
Parry and Taylor, 2007	65+ (men); 60+ (women) (SPA in UK)	24; individuals living in 3 constrasting areas; UK	nascent and lifetime entrepreneur	(Non)-pecuniary incentives	SE may bring a "work immensely enjoyable"; SE may be a solution to face insufficient retirement funds
Platman, 2003	50+	14; individuals involved in day-to-day practice of freelancing; uk; 1999-00	nascent entrepreneur	(Non)-pecuniary incentives	The self-esteem and satisfaction that derives from E; SE may be a solution to face insufficient retirement funds
Rolfe et al., 2008	54 (median age)	23 owners of independent midwifery; Tanzania; 2003-04	nascent entrepreneur	Non-pecuniary incentives	Individuals become LLE to improve their health and well-being, to increase their income, to have flexible working hours, the sense of autonomy from running one's small business venture, job satisfaction in meeting the needs of under-served communities, the desire to use one's talent, not to stay quite in retirement.
Say and Patrickson, 2012		23; entrepreneurs whose companies exist for 42 months; Singapore;	nascent entrepreneur	Non-pecuniary incentives	Fulfilling personal aspirations, pushing back the retirement goal post, making sense of changing circumstances at work, and re-evaluating lifestyle goals at career cross-roads. Job dissatisfaction was probably the most cited preductor of E.
Small, 2012	55+	558; individuals running their own business; UK;	nascent entrepreneur	Non-pecuniary incentives	Redundancy from a previous role was the biggest single trigger to setting up in a business; "I's always wanted to be my own boss"; frustration with large companies and internal politics; the opportuntiy to effect a management buy-in to a unit or division of a large company

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable Pecuniary and non-pecuniary incentives	Main Findings
Wainwright and Kibler, 2013	50+	22; entrepreneurs; UK; 2010-11	nascent entrepreneur	(Non)-pecuniary incentives	It enabled inds. to work part-time, affording them a mix of retirement and work; Inds. do not wish to work late but felt that developing an entrepreneurial venture, was necessary to provide an adequate income in older age.
Walker and Webster, 2007	50+	15; women entrepreneurs; Western Australia	nascent and lifetime entrepreneur	Non-pecuniary incentives	Flexible hours, wanting to work from home and the need to balance work and family, clearly indicate that women are still doing the double shift of having to cope with family and work. Older women compared to older men are not actively seeking self-employment as their first employment option
Zissimopoulos and Karoly, 2007	51-67	Inds.borned between 1931-41 and their spouses; USA; 1992-00	nascent entrepreneur	Non-pecuniary incentives	To reduce hours at a W&S job increases the likelihood for men of moving to SE

Table 1-14 Articles associated with Human capital

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable of Human Capital	Main Findings
Baucus and Human, 1995	39-60	7; early retirees worked for a Fortune 100 international manufactoring corporation; USA; 1992	nascent entrepreneur	Family background / Experience	Less time elapses between departure and start-up for retirees with role models or prior entrepreneurial experience, than for retirees who lack similar experiences; most retirees with technology career orientations use an incremental entrepreneurial process, while retirees working from management career orientations use a punctuated equilibrium entrepreneurial process.
Curran and Blackburn, 2001	50-75	463; individuals employed; UK; 1999	nascent entrepreneur	Education	W&S workers may not move to SE because they think they have insufficient knowledge or know-how (39%)
D' Amours, 2009	50+	22; workers who had lost or left a career job during the period 1993-98; Canada; 1990-00	nascent entrepreneur	Experience	People who have specific, transferable skills that are in demand often find it easier to reposition
De Bruin and Firkin, 2001	50+	46; new entrepreneurs completed a course w/ the Small Business Unit of the Capital Development Agency; New Zealand; 1994	nascent entrepreneur	Experience / Informal Education	Skills acquired as a manager are useful to become na entrepreneur; Knowledge, skills and contacts play a role on the transition to SE
Fuchs, 1982	58 - 67	2.500; white urban males; USA; 1969,1971-73	nascent entrepreneur	Experience	Previous experience in self-employment or managers & salesmen are more likely to switch to SE
Harms et al.,2014	50+	16 founders; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	Experience	General industry experience was mentioned as a key driver of entrepreneur's confidence
Kautonen, 2008	50-64	839; companies started between 2000-06; Finland	nascent entrepreneur	Education	Novice SE have the highest education level in terms of college, polytechnic and university degrees; more than a third of the serial SE only possess secondary school level qualifications.
Kautonen et al., 2010	20-64	785; inds. who spent the majority of time in W&S job; Finland; 2006	would-be entrepreneur	Experience	Only a career in 'blue-collar' industrial work has a signif. impact on the individual's entrepreneurial intentions; work history becomes a signif. det. of entrepreneurial intentions only at 50-64
Logan, 2014	50-62	10; female entrepreneurs which businesses were growing, profitable and employed staff; UK	nascent entrepreneur	Experience / Education	Previous exp.: in bureaucratic organizations, role models within the family contributed to the decision of becoming an ent.; education is important
Mallet and Wapshott, 2015	50+	2; entrepreneurs; UK	nascent entrepreneur	Experience	Entrepreneurs drawn on their employment experience in establishing their businesses.

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable of Human Capital	Main Findings
Parker and Rougier, 2007	55-69	3543; randomly selected inds. and their spouses; UK	nascent and lifetime entrepreneur	Experience	The switchers have a significantly and substantially greater incidence of part-time jobs and jobless spells between the waves than the long-term self-employed do
Say and Patrickson, 2012		23; entrepreneurs whose companies exist for 42 months; Singapore;	nascent entrepreneur	Experience / Education / Informal education	Knowledge domain: - work experience, education, lived experiences and individuals capabilities Pre-existing knowledge and work experience provided many entrepreneurs with valuable entrepreneurial skills. Knowledge if the markets in which they have been employees enbaled them to establish the existence of unexploited or new oppportunities.
Singh, 2009	55+	3000; households; USA; 1972-94	nascent and lifetime entrepreneur	Role-model/ Education	For both older and younger entrepreneurs, having a self-employed father was positively and significantly related to becoming self-employed; for older entrepreneurs having a high school diploma made them less likely to choose self-employment.
Singh and Verma, 2003	45+	1805; early retirees of Bell Canada; Canada; 1995	nascent entrepreneur	Experience	SE is negatively linked to lateral mobility
Solinge, 2014	50+	1221; employees of Unilever, IBM, VendexKBB and civil service; The Netherlands; 2001, 2006-07, 2011	nascent entrepreneur	Education	Early-retirees with higher educational attainment prefer E against WE
Tervo, 2014	55-74	425; individuals who move from non-employment (being unemployed, retired or students) to SE; 1998-2004; Finland	nascent entrepreneur	Experience / Education	Prior experience in E has a great importance for the decision to start a new business; occupational status is also an important factor in the transition to SE; higher education enhances E for novice, but not for habitual;
Zissimopoulos and Karoly, 2007	51-67	Inds.borned between 1931-1941 and their spouses; USA; 1992-2000	nascent entrepreneur	Experience / Education	Men in executive, sales, and laborer positions more likely to become SE compared to adm. support positions; for women, extremes between executive, adm./managerial occup. and farming, forestry & fisheries; Probability of transitioning to SE is positively related to level of education (esp. 4 men)
Zissimopoulos et al., 2009	50+	21872; individuals that moved from wage and salary to SE; USA; 1992-2004	nascent entrepreneur	Education	Compared to non-entrants, self-employment entrants are college educated

Table 1-15 Articles associated with Social capital

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Main Findings
Harms et al.,2014	50+	16; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	A negative perception of society regarding the option of Eat an older age can work as an inhibitor to individuals; a positive to support/ environment is important to get support; family influence the type of the business selected.
Kibler et al., 2015	50+	22; entrepreneurs, UK	nascent entrepreneur	*As serial SEs have previous experience in running a business, they may be less concerned by the perceptions of friends and family than novice SEs; novice SEs sought greater support from reference groups, in contrast to SE that have more experience and thus develop a greater confidence in being an entrepreneur; *Family and friend groups may not view serial SE as deviating from their usual enterprising activities; * Instances of discrimination and exclusion were also affected by the work histories of references groups, particularly friends and family.
Logan, 2014	50-62	10; female entrepreneurs which businesses were growing, profitable and employed staff; UK	nascent entrepreneur	Support of families is important.
Platman, 2003	50+	14; individuals involved in day-to-day practice of freelancing; uk; 1999-00	nascent entrepreneur	Social capital is important: "without these little connections, meaning contacts with the right people in the right places, his approaches were futile"
Say and Patrickson, 2012		23; entrepreneurs whose companies exist for 42 months; Singapore;	nascent entrepreneur	Social ties: It would appear that who knew them was just as important, if not more, as whom they knew since it was the former that determined the extend of support the MCEs would receive.
Singh and DeNoble, 2003	55+	no empirical analysis	nascent entrepreneur	Early retirees are more likely to become SEs if they have in place established strong networks.

Table 1-16 Articles associated with Wealth

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable of Financial Capital	Main Findings
Biehl et al., 2014	51-61	22.000 individuals over the age of 50 and their spouses; USA; 1998-2010	nascent entrepreneur	Income	Income reduces the probability of entering SE.
Curran and Blackburn, 2001	50-75	463; individuals employed; UK; 1999	nascent entrepreneur	Income	W&S workers may not move to SE because there is not guarantee of income (65%).
Kautonen et al., 2008	50+	1.098 individuals who contacted PRIME in 12 months; UK; 2002-05	would-be entrepreneur, nascent entrepreneur	Wealth	Individuals give up the idea of starting a business mainly for financial reasons (this study focus on socially disadvantaged people)
Parker and Rougier, 2007	55-69	3543; randomly selected inds. and their spouses; UK	nascent and lifetime entrepreneur	Wealth	The switchers to SE have lower wealth and actual or potential earnings;
Platman, 2003	50+	14; individuals involved in day-to-day practice of freelancing; uk; 1999-00	nascent entrepreneur	Wealth	Older individuals sought freelance later in life to face poor pension entitlements.
Singh, 2009	55+	3000; households; USA; 1972-94	nascent and lifetime entrepreneur	Income	Both older and younger entrepreneurs earn more than those who work for others.
Singh and DeNoble, 2003	55+	no empirical analysis	nascent entrepreneur	Access Financial capital	Early retirees who have access to financial resources are more likely to become SE
Solinge, 2014	50+	1221; employees of Unilever, IBM, VendexKBB and civil service; The Netherlands; 2001, 2006-07, 2011	nascent entrepreneur	Wealth	Early-retirees with accumulated wealth prefer SE comparing to W&S work;
Tervo, 2014	55-74	425; individuals who move from non-employment (being unemployed, retired or students) to SE; 1998-2004; Finland	nascent entrepreneur	Income	large income increases the probability to start a business at older ages;
Wainwright and Kibler, 2013	50+	22; entrepreneurs; UK; 2010-11	nascent entrepreneur	Wealth	Individuals who develop older entrepreneurial activities had in some cases initially attempted to develop a pension plan in order to fund their retirement, earlier in their lifecycle.

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable of Financial Capital	Main Findings
Zissimopoulos and Karoly, 2007	51-67	Inds. borned between 1931-41 and their spouses; USA; 1992-00	nascent entrepreneur	Wealth/ Income/ Inheritances	Having higher household wealth increases the probability of becoming SE (more 4 men); those with some form of pension plan are less likely to move to SE compared with those with no pension plan; FT W&S men, ever receiving an inheritance increases the probability of transitioning to SE
Zissimopoulos and Karoly, 2009	51+	38182; workers and nonworkers; USA; 1992-04	nascent entrepreneur	Wealth	Wealth was positively associated with returns to work as SE workers
Zissimopoulos et al., 2009	50+	21872; individuals that moved from wage and salary to SE; USA; 1992-2004	nascent entrepreneur	Wealth	All wealth measures, including business wealth, are higher among entrants and non-entrants. SE less likely to have pension benefits in their W&S job

Table 1-17 Articles associated with Risk Attitudes, Over-optimism and other Psychological Traits

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Main Findings
Ainsworth and Hardy, 2008	45+	individuals seeking employment, or establishing a business, following unemployment; Australia; 1999-00	nascent entrepreneur	Preferences for buying established businesses due to the potential lower risk to face
Curran and Blackburn, 2001	50-75	463; individuals employed; UK; 1999	nascent entrepreneur	W&S workers may not move to SE because there is too risky (50%)
Harms et al., 2014	50+	16; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	General industry experience is a key driver of entrepreneur's confidence.
Say and Patrickson, 2012	30+	23; entrepreneurs whose companies exist for 42 months; Singapore;	nascent entrepreneur	Personality: optimism, enterprising nature, passion, determination and people-oriented. Perceived risk: participants appeared to experience risk in terms of an opportunity-centred entrepreneurial process.
Singh and DeNoble, 2003	55+	no empirical analysis	nascent entrepreneur	Early retirees with greater entrepreneurial tendency are more likely to become SE; constrained entrepreneurs are likely to score higher in terms of self-efficacy than other early-retiree entrepreneurs (rational and reluctant).
Singh and Verma, 2003	45+	1.805; early retirees of Bell Canada; Canada; 1995	nascent entrepreneur	SE is negatively linked to work attachment
Solinge, 2014	50+	1221; employees of Unilever, IBM, VendexKBB and civil service; The Netherlands; 2001, 2006-07, 2011	nascent entrepreneur	Early-retirees with self-efficacy prefer SE against WE.
Tornikoski and Kautonen, 2009	50+	531; Finland; 2006	would-be entrepreneur	The most important predictor of entrepreneurial intentions is PBC.
Zissimopoulos and Karoly, 2009	51+	38182; workers and nonworkers; USA; 1992-04	nascent entrepreneur	Risk aversion had no effect on these transitions

Table 1-18 Articles associated with Demographic and Industry characteristics

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable Demographic charct.	Main Findings
Biehl et al., 2014	51-61	22.000 individuals over the age of 50 and their spouses; USA; 1998-2010	nascent entrepreneur	Marital Status	A spouse that has health insurance reduces the probability of entry.
Cannon and Kurowska, 2013	50+	30; UK	nascent and lifetime entrepreneur	Gender	Men are consistently more likely to be reluctant entrepreneurs while women are more likely to be rational or lifestyle entrepreneurs (small difference among constrained entrepreneurs)
Curran and Blackburn, 2001	50-75	463; individuals employed; UK; 1999	nascent entrepreneur	Industry characteristics	W&S workers may not move to SE because working hours too long (40%)
D' Amours, 2009	50+	22; workers who had lost or left a career job during the period 1993-98; Canada; 1990-00	nascent entrepreneur	Marital status	The dimension of the couple is important because several repositionings involve couples who work in the same small business; individuals' whose spouse has an income makes the transition more secure
Harms et al., 2014	50+	16; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	Family	Family influence influence the type of the business the individual selects.
Kautonen, 2008	50-64	839; companies started between 2000-06; Finland	nascent entrepreneur	Gender	SE are predominantly male. The percentage of women in the novice SE group is much higher. This perhaps suggests the current climate change in gender roles which encourages older women to business ownership.
Parker and Rougier, 2007	55-69	3543; randomly selected inds. and their spouses; UK	nascent and lifetime entrepreneur	Health issues	Poor health decrease the probability that workers will move into SE
Platman, 2003	50+	14; individuals involved in day-to-day practice of freelancing; uk; 1999-00	nascent entrepreneur	Industry characteristics	The lack of formal industry-wide standards or specifications of freelance working conditions, pay scales, recruitment practices or contractual rights meant that freelancers were largely unprotected in the labour market, being a barrier to later life freelance activity.
Tervo, 2014	55-74	425; individuals who move from non-employment (being unemployed, retired or students) to SE; 1998-2004; Finland	nascent entrepreneur	Gender/ Spouse	The effect of gender is inconclusive; having a spouse that is an entrepreneur increases the probability of starting a business at older ages; having a working spouse also increases the probability of starting a business for habitual entrepreneurs.

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Variable Demographic charct.	Main Findings
Wenger and Reynolds, 2009	55-64	employed married respondents; USA; 1997, 99, 00, 05	nascent entrepreneur	Marital status/ Health issues	Women and men who have spouses in poor health are less likely to work as self-employed independent contractors; Women in poor health are more likely than women in good health to be self-employed independent contractors.
Zissimopoulos and Karoly, 2007	51-67	Inds.borned between 1931-41 and their spouses; USA; 1992-00	nascent entrepreneur	Marital status/ Health issues	Never married/widowed/divorced women are more likely to transition to SE compared with their married counterparts; women whose spouse is in fair or poor health are less likely to become SE compared with those whose spouse is in good health; Women whose spouse works have a significant negative impact of becoming SE; Having a spouse who has ever received an inheritance decreases the likelihood for men of becoming SE; women's transitions to SE are not related to inheritances; The likelihood of moving to SE increases by 47% for men (for women 30%) with a health condition that limits their work relative to workers without a work limiting health condition.
Zissimopoulos and Karoly, 2009	51+	38182; workers and nonworkers; USA; 1992-04	nascent entrepreneur	Industry characteristics	Workers in firms with 6 to 25 (26 or more) employees were about 1% (3%) less likely to move to SE than workers from small firms of fewer than 6 employees.
Zissimopoulos et al., 2009	50+	21872; individuals that moved from wage and salary to SE; USA; 1992-2004	nascent entrepreneur	Marital status/ Health issues	Compared to non-entrants, SE entrants are more likely to be white, male, married; Compared to non-entrants, SE entrants are more likely to have a work-limiting health condition. (…);

Table 1-19 Articles associated with Macroeconomic Characteristics

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Main Findings
Biehl et al., 2014	51-61	22.000 individuals over the age of 50 and their spouses; USA	nascent entrepreneur	Unemployed men were far more likely to enter SE after the Great Recession.
Kautonen et al., 2011	45-64	496; inds. who are not entrepreneurs; Finland; 2006	would-be entrepreneur	The level of E in the municipality does not moderate the impact of the perceived age norm on entrepreneurial intentions and it exerts a positive effect on the perceived support from family and friends (for those aged 45-54);
Parker and Rougier, 2007	55-69	3543; randomly selected inds. and their spouses; UK	nascent and lifetime entrepreneur	Some turn to SE as a last resort before finally retiring.
Singh and DeNoble, 2003	55+	no empirical analysis	nascent entrepreneur	Early-retirees are more likely to become SE if live in a region of integrated clusters of firms and if have access to lower costs of capital and subsidies.
Singh, 2009	55+	3000; households; USA; 1972-94	nascent and lifetime entrepreneur	Over time, there has been no real change in the SE rate of SE, but the results indicate that during the 1970s, younger individuals were significantly less likely to become self-employed.
Tervo, 2015	55-74	425; individuals who move from non-employment (being unemployed, retired or students) to SE; 1998-2004; Finland	nascent entrepreneur	Living in an urban area enhances habitual, but novice E at older ages.

Table 1-20 Articles associated with Culture

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Main Findings
Ainsworth and Hardy, 2008	45+	individuals seeking employment, or establishing a business, following unemployment; Australia; 1999-00	nascent entrepreneur	Older workers were seen as unlikely to be successful entrepreneurs
Harms, et al., 2014	50+	16; companies with an average of less than 6 years; Rhine Valley	nascent entrepreneur	A negative perception of society regarding the option of SE can work as an inhibitor to individuals; a positive environment is important to get support.
Kautonen et al., 2011	45-64	496; individuals who are not entrepreneurs	would-be entrepreneur and nascent entrepreneur	Perceptual of being socially acceptable to be entrepreneurially active exerts a significant positive influence on entrepreneurial intention.
Kautonen, 2012	15+	5059; 24 countries; 2008-09	nascent entrepreneur	General public's perception of the economic contribution to society made by older people is negatively associated with the entrepreneurial engagement of individuals aged 50-74.
Kibler et al., 2015	50+	UK	nascent entrepreneur	Those ent. whose venture was similar to previous sectorial work, were less likely to experience discriminating behavior, as the gap between the established norms of their current work and previous work was narrow.
Mallet and Wapshott, 2015	50+	2; entrepreneurs; UK;	nascent entrepreneur	There is a dominant image of the entrepreneur as being a "superstar", "that there are correct ways to be an entrepreneur". This influence individual's expectations and act as legitimisations of particular narratives of entrepreneurship; lack external support may be enhanced for those from more marginalised and less financially-resourced backgrounds.
Minola et al., 2016	18-64	13.963; working-age individuals, potential entrepreneurs; 2012; 21 countries	would-be entrepreneur	Referring to generic age "effects" in E while ignoring culture, appears limitative, if not inappropriate; “policies that are particularly concerned about the inclusion of third-age people in social and economic life (Kautonen et al. 2014) clearly need to be culture-specific. Based on our findings, in low PO cultures such as Italy and Portugal, where the prevalent culture does not buffer the decline in motivation in old age as much, there is an obvious need for “stronger” programs for older adults to stimulate their self-employment motivations”

Table 1-21 Articles associated with Firm Performance

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Individual or Firm-level Assessment	Main Findings
Ainsworth and Hardy, 2008	45+	individuals seeking employment, or establishing a business, following unemployment; Australia; 1999-00	nascent entrepreneur	Firm	Older workers were seen as unlikely to be successful entrepreneurs.
D'Amours, 2009	50+	22; workers who had lost or left a career job during the period 1993-98; Canada; 1990-00	nascent entrepreneur	Individual	The least precarious scenarios are associated with a combination of favourable elements (continuous, unionized trajectory entitling the respondents to retirement income AND transferable skills in the repositioning job, the presence of a spouse with his or her own income).
Gielnik et al., 2012	24-74	84; small business owners; Germany; 2007	nascent and lifetime entrepreneur	Firm	Business owners' age had a negative indirect effect on venture growth; in the case of low mental health, there was a strong negative effect of business owners' age on focus on opportunities; high levels of mental health buffer the negative effect of business owners' age on focus on opportunities.
Hennekam, 2015	51-67	43; older self-employed creatives that are members of the trade union FNV-KIEM, The Netherlands		Individual	65% of older self-employed creatives perceived themselves to be successful; these focus on their strenghts, using their professional networks building up during their careers and managing to transfer their knowledge and skills to other work domains;
Hodges, 2012	46-60	100; women who moved into SE from organizational employment; UK; 2009-11	nascent entrepreneur	Individual	Success was measure in terms of self-fulfillment and acheive of their personal goals, (...), in terms of personal growth, applying their skills and experience and being true to their own values, which one woman described as "maintaining a person value system", rather than externally in quantitative measures"
Kautonen and Minniti, 2017	50-67	115; individuals who switched to entrepreneurship; UK; 2002-11	nascent entrepreneur	Individual	Late-career workers who switch to E experience a significant increase in quality of life, measured as the satisfaction of the fundamental psychological needs of control, autonomy, self-realization, and pleasure. The increase in quality of life is also significantly greater than the experienced by individuals who switch to another organizational job. At the same time, inds. who switch to E experience a significant average reduction in income.
Kautonen et al., 2013	18-64	2566; inds. thinking about becoming SE, in nascent activities or who have strarted a (still active) business in the last 3 years; Eu-25, Norway, Iceland; 2007	nascent entrepreneur	Firm	Older inds. rarely start more growth-oriented owner-managed businesses (creating more jobs) or turn to self-employment for want of suitable opportunities in the labour market.

(Continued)

Authors	Age Range	Sample	Entrepreneurial Life-Cycle Stage	Individual or Firm-level Assessment	Main Findings
Kerr, 2017	50+	197; individuals who are both active in the workforce and those who have fully retired	nascent entrepreneur	Firm	97% of later-career ent. run organizations with four or fewer members, and three-quarters are one-person operations without any paid help.
Parker and Rougier, 2007	55-69	3543; randomly selected inds. and their spouses; UK	nascent and lifetime entrepreneur	Firm	Relatively few of them end up creating long-lived businesses, being much more likely to retire than are established business owners who have been SE for a long time.
Rolfe et al., 2008	54 (median age)	23 owners of independent midwifery; Tanzania; 2003-04	nascent entrepreneur	Firm	Small-scale independent midwifery practices may have potential to contribute to rates of 'skilled attendance' for delivery at peripheral level.
Singh, 2009	55+	3000; households; USA; 1972-94	nascent and lifetime entrepreneur	Individual	Both older and younger entrepreneurs earn more than those who work for others; older entrepreneurs are significantly more satisfied than younger entrepreneurs even though they report no difference in income.

STUDY 2

2. Case-study: Senior entrepreneurship in Portugal

2.1. Introduction

Population ageing constitutes one of the greatest challenges presently faced by industrialized societies. For example, European countries account for one of the highest ageing indices worldwide (UNFPA, 2013).

Various studies show that many older persons continue to participate in the labor market whether as employees, self-employed and/or as entrepreneurs (Cahill, Giandrea, & Quinn, 2006; Giandrea, Cahill, & Quinn, 2008). Within this context, self-employment and entrepreneurship have been gaining increasing attention as feasible occupational strategies (Kautonen & Minniti, 2014; Singh & DeNoble 2003) and emerging whether as a life style option or as an "imposition" due to lack of opportunities in the formal labor market. In economic terms, senior entrepreneurship[36] may mitigate the rise in social security costs (Kautonen, 2008; Zhang, 2008) and potentially contribute towards economic and social development (Zhang, 2008).

This article examines Portuguese senior entrepreneurship indicators and provides an international overview by comparing Portugal with other countries. Senior entrepreneurship refers to individuals aged 50 or over who intend, are in the process of, or have created a business. We start by analyzing the main senior entrepreneurship indicators (roughly since the year 2000) drawing on a variety of international sources, namely the Organization for Economic Cooperation and Development (OECD), Eurostat, European Commission (EC) and the Active Ageing Index. Additionally, we treat and analyze secondary data obtained from a Portuguese national employer-employee database ("*Quadros de Pessoal*") and primary data originating from a unique questionnaire designed and launched by the authors in Portugal.

According with our findings, albeit Portugal is lagging in terms of the proportion of senior entrepreneurs (among all entrepreneurs), in terms of TEA[37], compared to other

[36] Hereafter we use the term SE(s) for *Senior Entrepreneur(s)*.

[37] Total Early Stage Entrepreneurial Activity (TEA) – percentage of individuals between 18 and 64 years who are involved in setting up businesses or already developing new businesses (up to 3.5 years)

European countries, the representativeness of senior entrepreneurs (SEs) is increasing at a national-level. Special focus on the Portuguese case-study holds academic and policy relevance as the country has one of the most aged populations worldwide. In 2012, around 24% of the population was aged over 60 and in 2050 Portugal is expected to become the second most aged population in the world, ranked after Japan (UNFPA, 2013). Additionally, the employment rate among those aged 60 or more is significantly higher than the European Union average, with 40.2% working against the EU average of 30.4% for the 60-64 age group (Active Ageing Index, 2012). Furthermore, there is a very high percentage of self-employed workers among those aged over 50 (23%), indeed greater than those aged up to 49 (12%) (INE, 2012). Such data convey not only the relevance of labor activities to older persons but also the potential incidence of recourse to self-employment or the employment of others among older citizens. Hence, new knowledge on senior entrepreneurship in a country like Portugal is particularly relevant for academic and policy reasons.

Research on senior entrepreneurship has been developed in many countries; such as the United States of America (Biehl et al., 2014; Burr & Mutchler, 2007; Zissimopoulos & Karoly, 2007, 2009), United Kingdom (Hodges, 2012; Kautonen, Down, & South, 2008; Kautonen, Kibler, & Minniti, 2017; Logan, 2014; Wainwright & Kibler, 2013), Finland (Heimonen, 2013; Kautonen, Tornikoski, & Kibler, 2011; Tornikoski & Kautonen, 2009;) or Australia (Ainsworth & Hardy, 2008; Walker & Webster, 2007). Nevertheless, to the best of our knowledge, research on the Portuguese context is inexistent, which may evidence the lack of visibility of senior entrepreneurship in Portugal and brings a research opportunity.

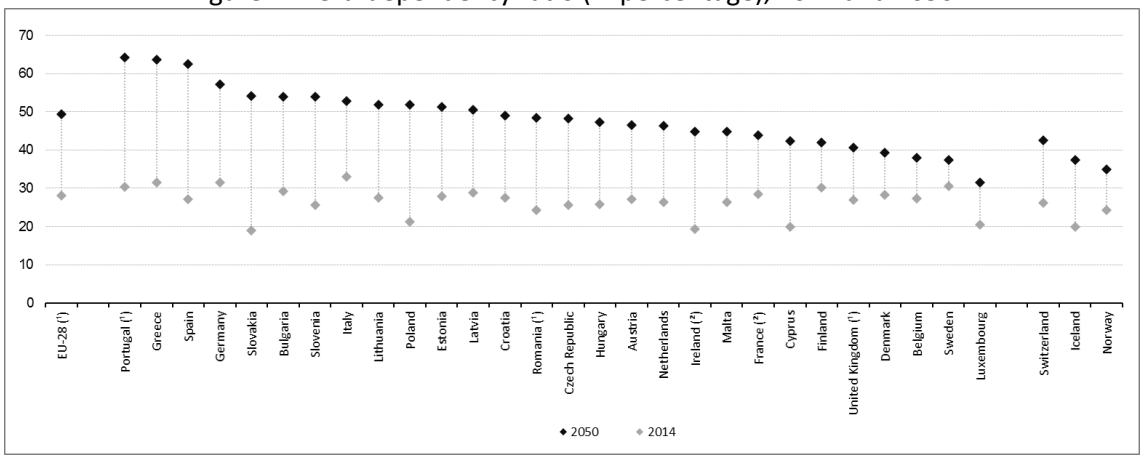
The study has three main sections introducing and discussing descriptive data obtained and triangulated from different sources. We then end the study with a summary of main findings and trends.

2.2. Emerging of an older population

Ageing is a major concern within the European Union (EU) countries and it has been widely discussed. The EU decided to declare 2012 as the European Year for Active Ageing and Solidarity between Generations. This has enabled a deeper effort to understand the effects of ageing and raised the awareness of those among policy and decision makers and the society in general.

There was a remarkable increase in life expectancy of the Portuguese people between 1970 and 2015. This difference was about thirteen years for both men and women (in 2015 –women were expected to live 83.3 years and men 77.6 years[38], numbers close to those of the EU) and the birth rate, in the same period, decreased from 3 to 1.3 children per woman (below the EU). The birth rate is below the threshold value usually considered for the replacement of the population that is 2.1. These two processes enhance ageing through the base (fall of birth rate) and the top (increase of life expectancy). This change leads almost inevitably to an ageing society and population decline and it represents a challenge for Portugal and many European countries. The fall in the birth rate in addition to the ageing of Portuguese population leads to serious concerns about the old dependency ratio, i.e., people aged 65 or above relative to those aged 15 - 64 – this index was around 32% in 2013 and is expected to be almost 70% in 2060 (EC, 2015). Figure 2-1 shows that Portugal has one of the highest dependency ratio percentages among the two periods under analysis.

Figure 2-1 Old-dependency ratio (in percentage), 2014 and 2050



Source: Eurostat[39]

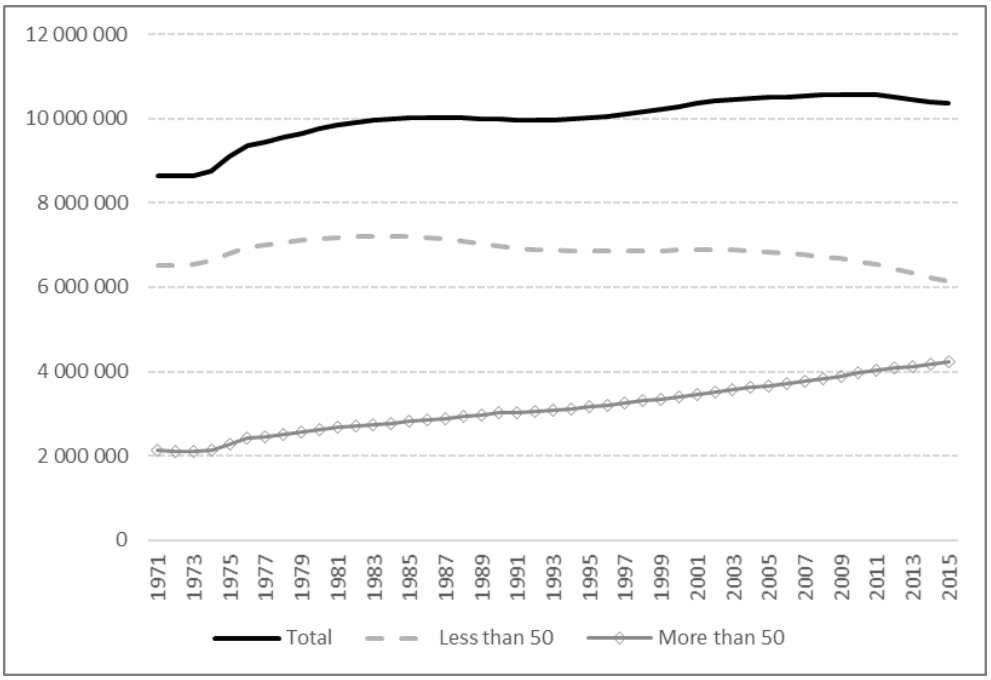
Figure 2-2 shows that, for the last forty years, the proportion of Portuguese older population has been increasing. In 2015, out of the 10.358.076 Portuguese inhabitants about 41% had more than 50 years and 20% were over 65 years (PORDATA[40]).

[38] INE, PORDATA – accessed in 14th June 2017: http://www.pordata.pt/Portugal/Esperan%c3%a7a+de+vida+%c3%a0+nascen%c3%a7a+total+e+por+sexo+(base+tri%c3%a9nio+a+partir+de+2001)-418

[39] Accessed in 14th June 2017 - http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

[40] Accessed in 14th June 2017 - http://www.pordata.pt/DB/Portugal/Ambiente+de+Consulta/Tabela

Figure 2-2 Resident Portuguese population, by age

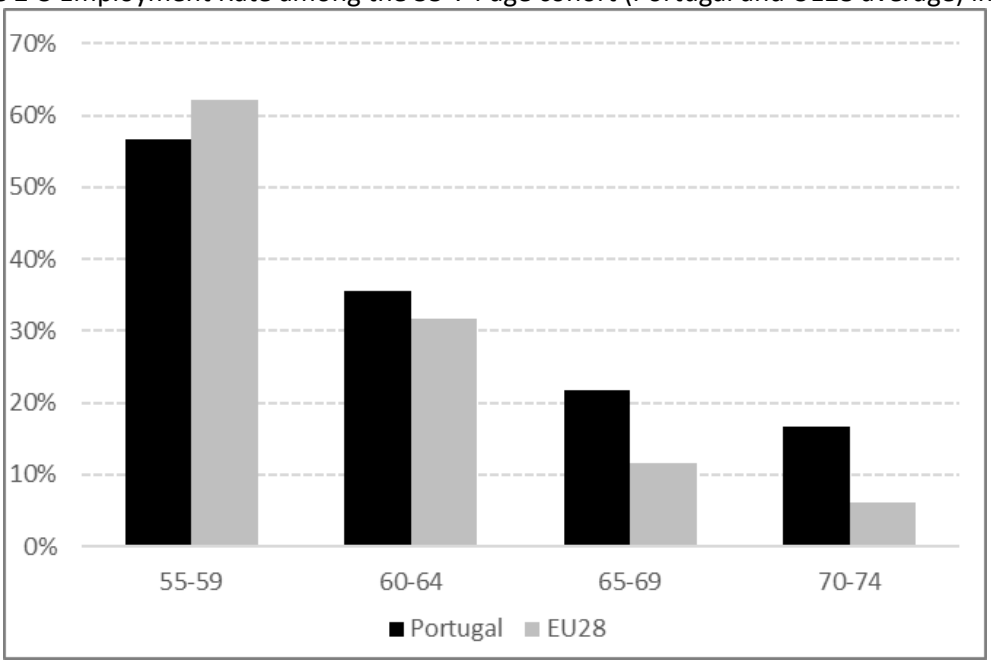


Source: Pordata[41]

As the Portuguese population ages, the workforce becomes consequently older. Figure 2-3 shows that, from the age of 60 on, Portugal has a higher rate of older adults' participation in employment compared to the average of EU countries. The reduction of the number of individuals in active age and the increase in the average age of the labor force means that organizations need to be ready to deal with structural changes by adapting to the new employees' profile and new labor relations (Gratton & Scott, 2017). As individuals work longer, their career encompasses more transitions to and from a wage and salary job. Organizations must face these challenges inherent to their human resources and adapt to longer professional careers enabling not only financial benefits but also programs regarding individuals' health, self-knowledge and continuous learning (Gratton & Scott, 2017).

[41] Accessed in 14th June 2017 - http://www.pordata.pt/Portugal/Popula%c3%a7%c3%a3o+residente+segundo+os+Censos+total+e+por+grupo+et%c3%a1rio++-2

Figure 2-3 Employment Rate among the 55-74 age cohort (Portugal and UE28 average) in 2014



Source: Active Ageing Index, 2014

2.3. Senior entrepreneurship

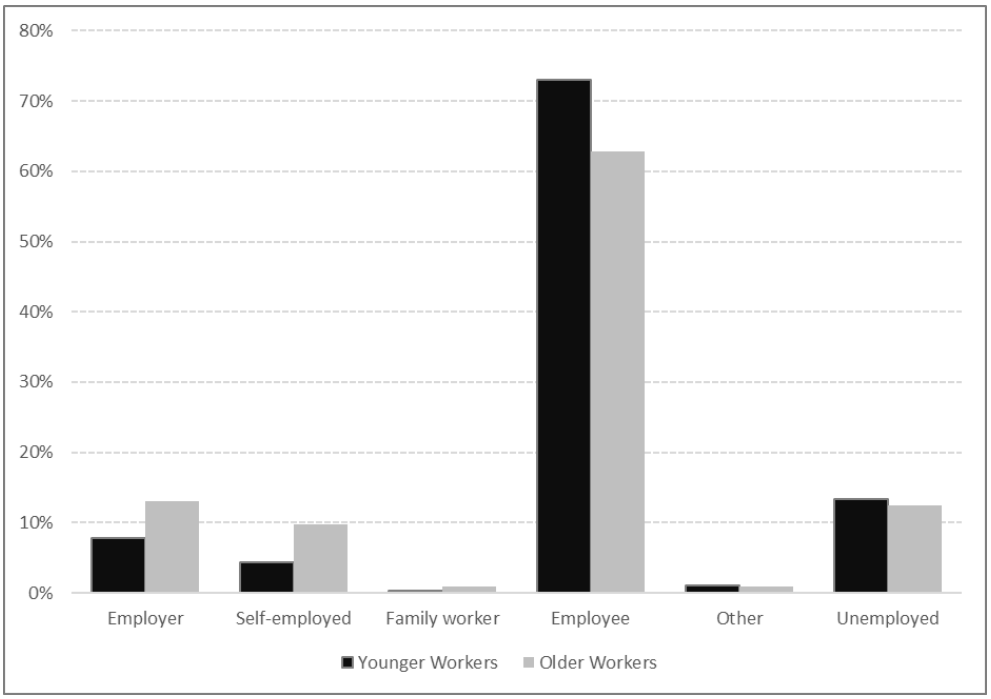
This section presents primary and secondary data regarding the phenomenon of senior entrepreneurship. Firstly, based on national and international data, Portuguese reality of senior entrepreneurship is presented and compared with the international scenario. Then, secondly, data obtained from *Quadros de Pessoal* (QP) is analyzed. The QP database allows for comparisons among Portuguese individuals starting a company among different age cohorts. Thus, younger and older individuals starting companies are compared regarding their profile and companies. Thirdly, primary data, based on a questionnaire developed and applied by the authors are presented. This questionnaire provides us with detailed information regarding SEs' motivations, characteristics and firm performance.

National statistics refer to both individuals who were entrepreneurs for their whole life and those who have started a business for the first time (novice entrepreneur) or those who have started the first business before the age of 50 and a new one above that

same age (serial entrepreneurs and/or portfolio entrepreneurs if when running more than one business at the same time)[42].

In 2011, Portuguese self-employed and employers account for 745.213 individuals (INE, 2012) and of those, 38% are aged 50 or over (n= 285.073). This ratio is identical to individuals aged 50 or above among the whole population (in 2011 it accounted for 38% (PORDATA[43]). This may reflect that the population and individuals employed, being either employers or self-employed, have a similar age pattern. Figure 2-4 show that being self-employed and/or employer plays a more important role among older than younger individuals[44]. Specifically, 23% of individuals aged 50 or over are self-employed and employer, as compared to 12% for the younger age range.

Figure 2-4 Percentages of Younger and Older Workers by Employment Type in 2011



Source: INE, 2011

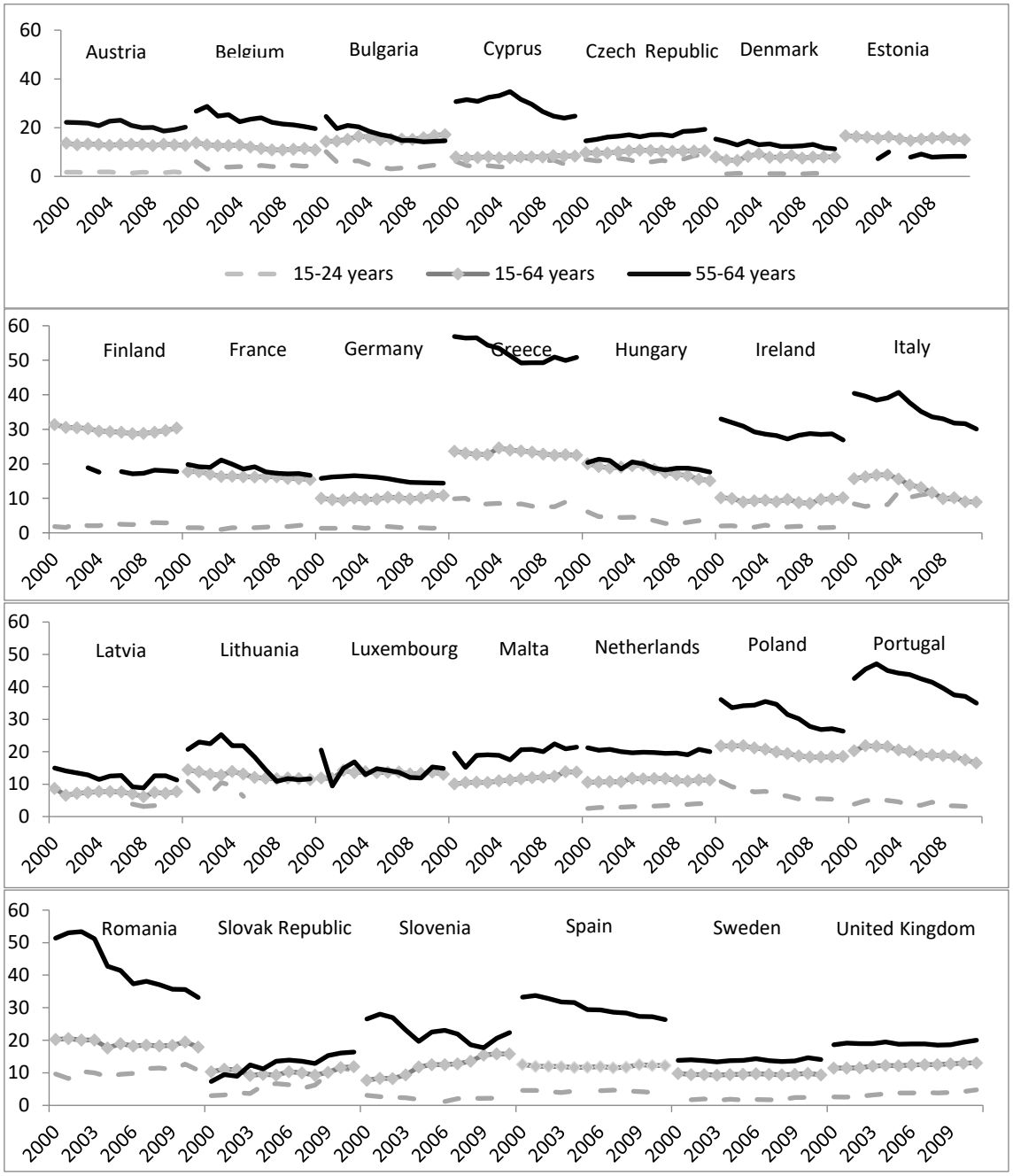
[42] Even though the aim of our study is to depict the Portuguese context of those who start firms above the age of 50, due to the impossibility of having national data distinguishing by individuals who have already been entrepreneurs and those who have not, our analysis encompasses all.

[43] Accessed in 14th June 2017 - http://www.pordata.pt/Portugal/Popula%c3%a7%c3%a3o+residente+segundo+os+Censos+total+e+por+grupo+et%c3%a1rio++-2

[44] As mentioned before, the data under analysis has one important limitation: the fact we cannot filter for individuals who start a business at the age of 50 or over. Therefore, the present statistics gather all type of entrepreneurs – lifelong and individuals who started above this age.

Figure 2-5, which illustrates self-employment and entrepreneurship rates by age, shows that they tend to be higher amongst older cohorts than in younger groups (except Estonia, and Finland). Regarding the Portuguese case, two main conclusions are drawn from this figure: firstly, there is a decrease of the self-employment rate between 2000 and 2009 (in line with what happens with other countries such as Romania, Bulgaria, and Italy). Secondly, in 2011 Portugal has the highest rate (approximately 35%) of self-employment among older individuals, compared to other European countries. These findings show the importance self-employment has as a professional occupation among older individuals and, moreover, the dimension of Portuguese senior entrepreneurship within the European context.

Figure 2-5 Entrepreneurship rates by age, 2000-11[45]



Source: Eurostat, Labor Force Survey 2000-2011

Literature on senior entrepreneurship shows that as age increases, the willingness to start a business decreases (Lévesque & Minniti, 2006). However, the likelihood of starting a business increases with age (Burr & Mutchler, 2007; Evans & Leighton, 1989; Liñán, Santos, & Fernández, 2011; Livanos, 2009; Van Es & Van Vuuren, 2011). Thus,

[45] Includes individuals who work alone (the largest share) and those who own a business that has employees.

there seems to exist two different approaches. The case of Portugal seems to be quite enigmatic because, as mentioned before, entrepreneurship plays an important role in older individuals' professional occupation, and, on the other hand, it seems that Portuguese older individuals are those who less will to start a business (Table 1). Entrepreneurship among older individuals may be connected to, for example, age discrimination within the labor market, the need to complement salary or retirement pension, and the need and/or willingness to remain attached to the labor market.

Table 2-1 shows the entrepreneurial activity rates in the 35 countries included in the Eurobarometer dataset[46]. The table distinguishes three levels of engagement on the entrepreneurial ladder by individuals of two age ranges – "prime" and "third". There is a high variation in the levels of senior entrepreneurial activity between the 35 countries and Portugal has one of the lowest percentage of individuals stating that they want to start a business later in life (only surpassed by Austria and Belgium) and of who have recently started a business (only surpassed by China). On the other hand, Portugal positions above the average concerning the "never thought" aspect. This suggests that although Portugal ranks as one of the countries in the world with the oldest population, it is not positioning as a senior entrepreneurial society. This lower willingness and entrepreneurial activity may be underrepresented due to an important drawback in the table – the fact it does not include individuals who have started one or more businesses ("serial entrepreneurs", according to Birley & Westhead (1994) and Amaral, Baptista, & Lima, 2011) in the past. From previous literature, we know that entrepreneurial experience has a positive and significant influence on starting a firm later in life (Fuchs, 1980; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009). Thus, these percentages may not give a broad picture of the early-stage activity of SEs and percentages of senior entrepreneurship activity could be higher if we consider serial entrepreneurs as well. Nevertheless, in terms of cross-country comparisons, they are comparable because it is applied the same criteria for all.

[46] The statistics of OECD (Halabisky et al., 2012) are based on the 2009 Flash Eurobarometer Survey on Entrepreneurship ('Eurobarometer') dataset (European Commission). This data was collected in 2009 and encompasses 26,168 individuals from 31 European countries as well as Japan, South Korea, China and the United States. The national samples are representative of the population aged between 15 and 74 years.

Table 2-1 Entrepreneurial potential in two cohorts of individuals (20-49 years and 50-64 years)

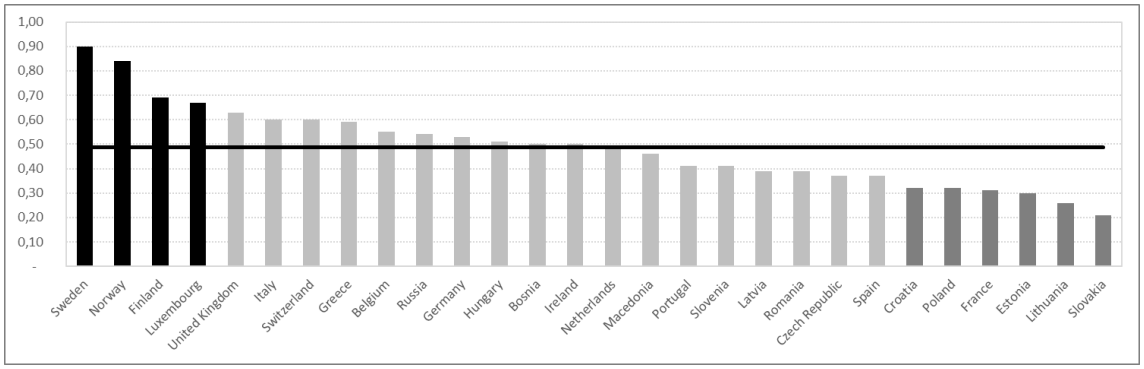
	Never thought about starting a business		Thinking about starting a business			Involved in early stage start-up activities		
Country	Prime	Older	Prime	Older	Older/ Prime	Prime	Older	Older/ Prime
Belgium	85,6	96,9	7,7	2	26%	6,8	1,2	18%
Czech Republic	72,7	81,9	16,9	9,6	57%	10,5	8,4	80%
Denmark	56,6	76,4	35,5	21,1	59%	7,9	2,4	30%
Germany	65,9	85,7	18,7	6,9	37%	15,4	7,4	48%
Estonia	63,8	82,2	18,9	9,9	52%	17,3	7,9	46%
Greece	51,3	77,2	31,7	14	44%	17,1	8,8	51%
Spain	74,9	91,3	16,2	3,8	23%	8,9	5	56%
France	66,3	89,3	22,2	8	36%	11,4	2,7	24%
Ireland	62,8	73,1	21,6	18	83%	15,5	9	58%
Italy	74	90,4	10,8	2,6	24%	15,2	7,1	47%
Cyprus	57,5	82,9	18,9	2,6	14%	23,6	14,5	61%
Latvia	46	75,6	46,8	18,6	40%	7,1	5,8	82%
Lithuania	61,8	86,8	21,8	7,2	33%	16,4	6	37%
Luxembourg	79,3	90,4	14,5	3,5	24%	6,2	6,1	98%
Hungary	58,3	87,3	32,9	7,7	23%	8,8	5	57%
Malta	81	91,7	13,5	2,8	21%	5,6	5,5	98%
Netherlands	68,2	86,2	14,6	3,6	25%	17,3	10,3	60%
Austria	71,7	93,7	16,5	2,5	15%	11,8	3,8	32%
Poland	48,2	76,1	32,8	10,2	31%	19	13,6	72%
Portugal	75,9	92,2	8,6	1,7	20%	15,5	6,2	40%
Slovenia	60,2	90,4	28,3	7,7	27%	11,5	1,9	17%
Slovakia	71,8	79,9	20,8	13,6	65%	7,4	6,5	88%
Finland	54,7	87,5	8,5	4,2	49%	36,8	8,3	23%
Sweden	50,5	71	28,6	17,2	60%	21	11,8	56%
United Kingdom	67	87	19,6	5,8	30%	13,5	7,1	53%
Bulgaria	43,8	74,7	44,8	17,6	39%	11,4	7,7	68%
Croatia	74,2	86,7	15,9	7,8	49%	9,9	5,6	57%
Romania	52,3	66,7	29,2	19,4	66%	18,5	14	76%
Turkey	55,6	73,2	22	17,9	81%	22,4	8,9	40%
Norway	64,9	87,5	18,2	6,3	35%	16,9	6,3	37%
Switzerland	57,3	81,9	32,1	8,3	26%	10,7	9,7	91%
Iceland	51,4	53	26,8	25,8	96%	21,8	21,2	97%
United States	46,9	59,9	24,7	18,4	74%	28,4	21,8	77%
South Korea	47,6	71,2	33	7,6	23%	19,4	21,2	109%
Japan	84,4	88,5	9,4	2,1	22%	6,3	9,4	149%
China	28,6	83,6	24,5	1,5	6%	46,9	14,9	32%
Total (N)	62,6	83,6	21,5	8,5	40%	15,9	8	50%
	-4323	-3732	-1484	-378		-1094	-357	

Source: 2009 Flash Eurobarometer Survey on Entrepreneurship

To better understand the importance of senior entrepreneurship within the reality of entrepreneurship, we draw on a study developed by Pilkova, Holienka, & Rehak (2014) which examines the relationship between senior entrepreneurship propensity and entrepreneurial context across countries. The authors create an index based on data from Global Entrepreneurship Monitor (GEM) to quantify the level of senior entrepreneurial activity. The senior entrepreneurial activity index results from the division of early-stage entrepreneurial activity in age category 55 – 64 (TEA – percentage of individuals 55-64 involved in the process of actively starting a business or running a new business less than 3.5 years old) by the overall TEA (percentage of individual involved in early-stage entrepreneurial activity). The index shows the proportion of senior entrepreneurship in relation to the overall entrepreneurship. Figure 2-6 shows that there is a high variability within the senior entrepreneurship phenomenon at a European level (also mentioned in Table 2-1). On average, the value of senior entrepreneurial activity index in European countries is 0.49 (**Figure 2-6**), meaning that the entrepreneurial activity of individuals 55 to 64 is half of the overall activity of the population. The index value of Portugal is 0.41, showing that early-stage entrepreneurial activity of older individuals in Portugal does not reach one half of the overall population. Sweden, Norway, Finland and Luxembourg display the highest index values from 0.67 to 0.90 (these countries are called as "high senior entrepreneurship cluster[47]"). The closer the value is to 1, the more similar is the early-stage entrepreneurial activity of older individuals in these countries to those of overall population. On the other hand, the lowest values are exhibited by Poland, Croatia, France, Estonia, Lithuania and Slovakia (called "low senior entrepreneurship cluster").

[47] Pilkova et al. (2014) cluster the countries in three groups according to the index of senior entrepreneurial activity. High rate of senior entrepreneurship refers to countries exhibiting an index value greater than 0.66 and low senior entrepreneurship rate as those showing index value lower than 0.33. The third group refers to countries exhibiting an index value between 0.33 and 0.66.

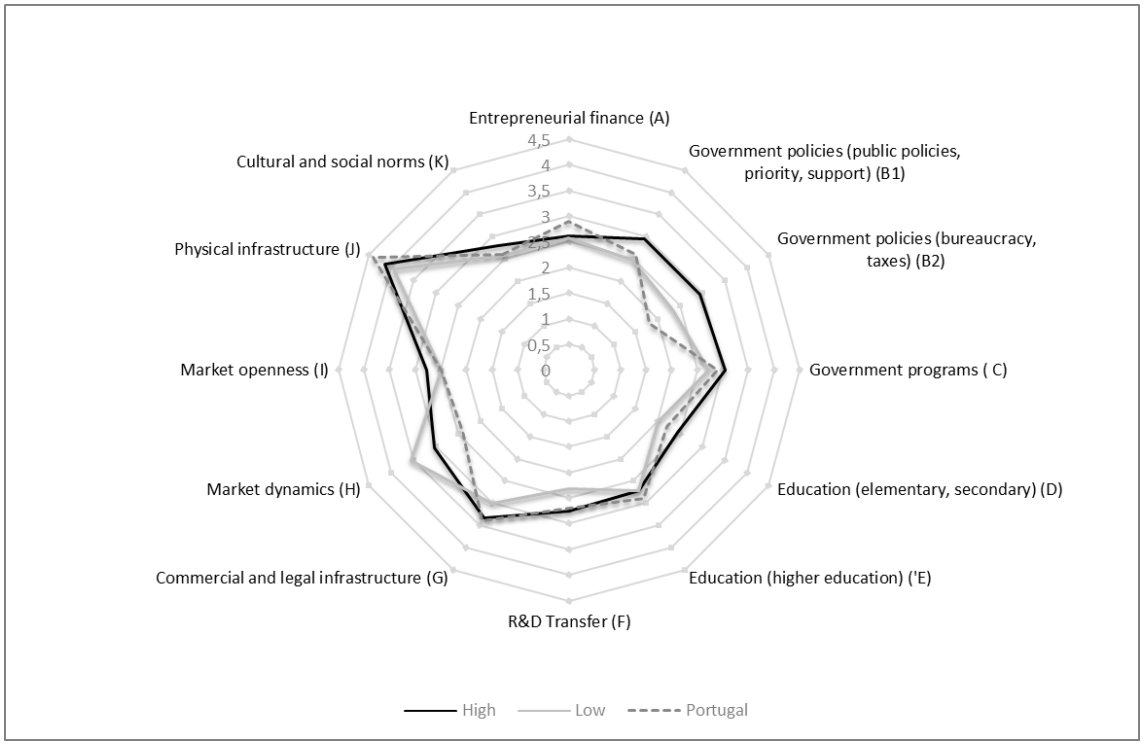
Figure 2-6 Senior entrepreneurial activity index (2013)



Source: Pilkova et al. (2014)

To examine the entrepreneurial framework of each country, the authors utilize the key entrepreneurial framework conditions (EFCs) from GEM. These variables reflect the assessment done by experts on several dimensions of the entrepreneurial environment (such as government policies, entrepreneurship education, market dynamics). Each variable represents an assessment on Likert-type scale from 1 (worst state) to 5 (best state). Figure 2-7 shows that as far as differences are concerned, countries with high senior entrepreneurial activity rates outperform those with a lower index in terms of government policies - related to entrepreneurship (B1) but especially in terms of bureaucratic and tax burdens (B2), primary and secondary education support towards entrepreneurship (D), and in research and development transfer (E). Based on Kelley, Singer & Herrington (2016), we also include in figure 2-7 the institutional entrepreneurial profile of Portugal. Comparing to the European case, Portugal exhibits a mixed profile as it has both characteristics of both senior entrepreneurship clusters. More specifically, compared to the low senior entrepreneurship cluster, Portugal still underperforms in terms of government policies supporting entrepreneurship (taxes and bureaucracy) and market dynamics. Nevertheless, the country obtains higher assessment compared to high senior entrepreneurship cluster in the following dimensions: entrepreneurial finance (A), higher education (E), and physical infrastructure (J).

Figure 2-7 High and low senior entrepreneurship – Portuguese institutional profile



Source: Author's own elaboration adapted from GEM (Amoros & Bosma, 2014) and Pilkova et al. (2014)

2.3.1. The Quadros de Pessoal Database

This section describes the main factors associated with firm creation and performance among older individuals who create or acquire firms in Portugal. We analyzed the Portuguese context of senior entrepreneurship (individuals aged 50 or over) by comparing it with younger individuals (individuals aged between 20 and 49 years old) who start or acquire firms. This section analyzes entrepreneurs' and firms' characteristics.

Quadros de Pessoal is a mandatory survey submitted annually to the Portuguese Ministry of Employment and Social Security by firms with at least one employee, since 1982. The dataset collects information on an average of 200,000 firms and approximately 2 million workers per year, covering virtually all employees and firms in the Portuguese private sector. The survey is compulsory for firms with more than ten employees. This section analyzes data between 2000 and 2009. The data reported by each firm, encompasses information on size, age, location, and sector. Data on business owners and employees within each firm include gender, age, profession, and occupation within the company, earnings, working hours and schooling attendance levels. This

dataset does not include public administration, military activities/organizations, independent workers (sole traders/non-incorporated businesses) providing services, nor workers without a contract.

Business owners are distinguished according with the stage of the firm's life cycle at the moment they enter the firm. Thus, individuals are deemed "starters" (when they enter the firm within the first two years of its existence, meaning they are part of the founding team) or "acquirers"[48] (when they enter a firm that is aged more than two years, meaning they are considered to have acquired a share in an already existing organisation).

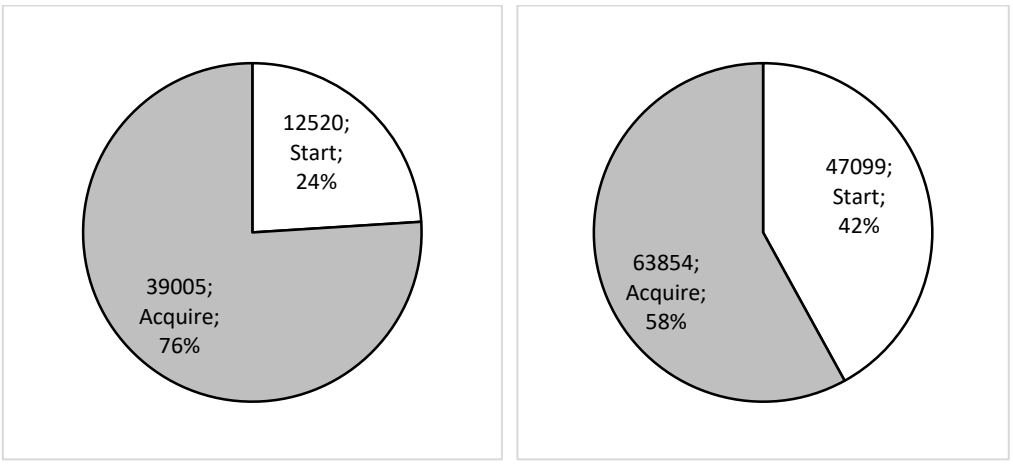
The sample under analysis encompasses 162.478 individuals who switch into a firm as a starter/acquirer between 2000 and 2009; out of which 32% refer to individuals aged 50 or over.

Entrepreneurs' Characteristics

Figure 2-8 shows that SEs start firms mainly through acquisition rather than start-up (76% vis-à-vis 24%). The case of younger entrepreneurs is quite different as they exhibit a higher balance between the two options (58% by acquisition and 42% as start-up). It seems that SEs are more likely to acquire firms than starting from the scratch. This finding is in line with the empirical evidence found by Ainsworth and Hardy (2008), who suggest that senior entrepreneurs may prefer to acquire a business (vis-à-vis starting it from the scratch) in order to avoid risks.

[48] The reason for choosing the first two years is explained by the fact in some cases there may be a mismatch in the data between what is reported as being the firms' year of foundation and the year firms effectively start operating and appear in the dataset. Given that the data is annual, and several cases show lag between the year of entry and the year they start activity, one finds suitable to consider a two years spell interval in order to identify start-ups and acquirements.

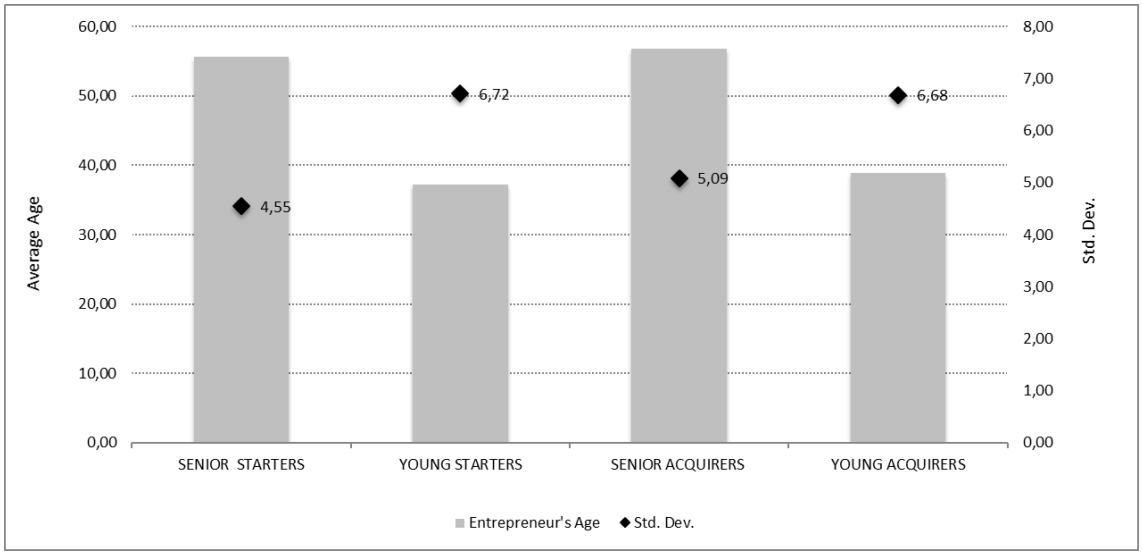
Figure 2-8 Sample: number of entrepreneurs (Senior/ Younger; Foundation/ Acquisition) between 2000-2009



Given that we are dealing with longitudinal data, it is worth to mention that the total of entrepreneurs (N=162.478), may appear repeatedly, over several years in the database. Thus, complementarily to the number of subjects (entrepreneurs), we focus on the number of total observations; hence, our sample accounts for 419.018 observations in 2000-2009.

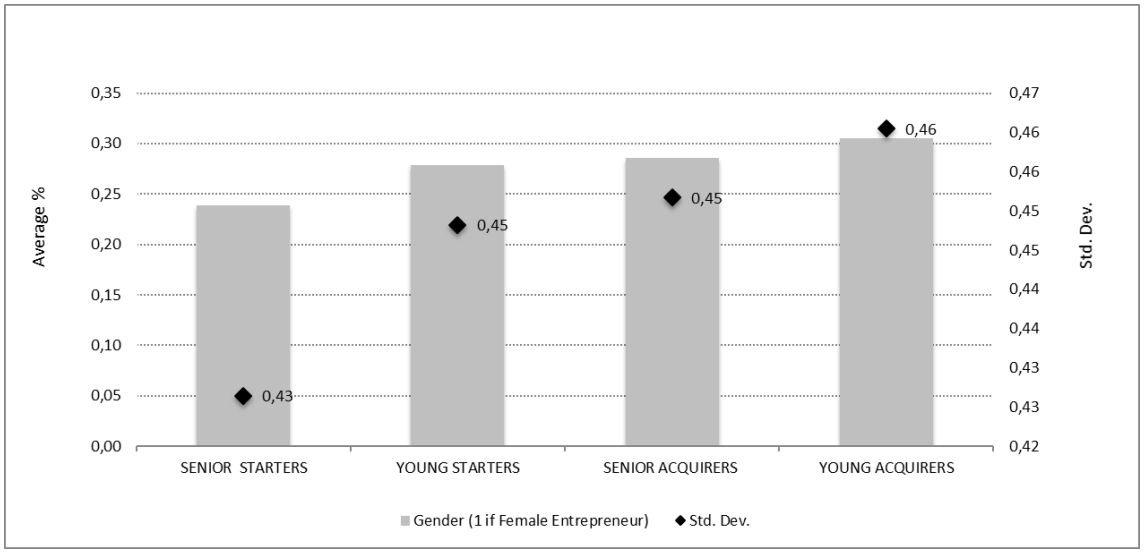
With regard of the individuals' average age at firm foundation or acquisition among firm starters and acquirers, one can observe in Figure 2-9 that, SEs are 56 and 55 years old, respectively and younger entrepreneurs, found or acquire their firm at the average age of 37 and 38 respectively. In general, no significant age differences are found among firm starters and acquirers.

Figure 2-9 Average Age (Senior/ Younger; Foundation/ Acquisition) between 2000-2009



In what concerns gender, Figure 2-10 shows that most of the entrepreneurs are male (around 70%). This is in line with the latest official population survey by Portuguese Statistics (INE, 2012). In general, the differences between younger and senior entrepreneurs are not significant. Nevertheless, there is a higher prevalence of female senior non-founder entrepreneurs compared to female senior founder entrepreneurs.

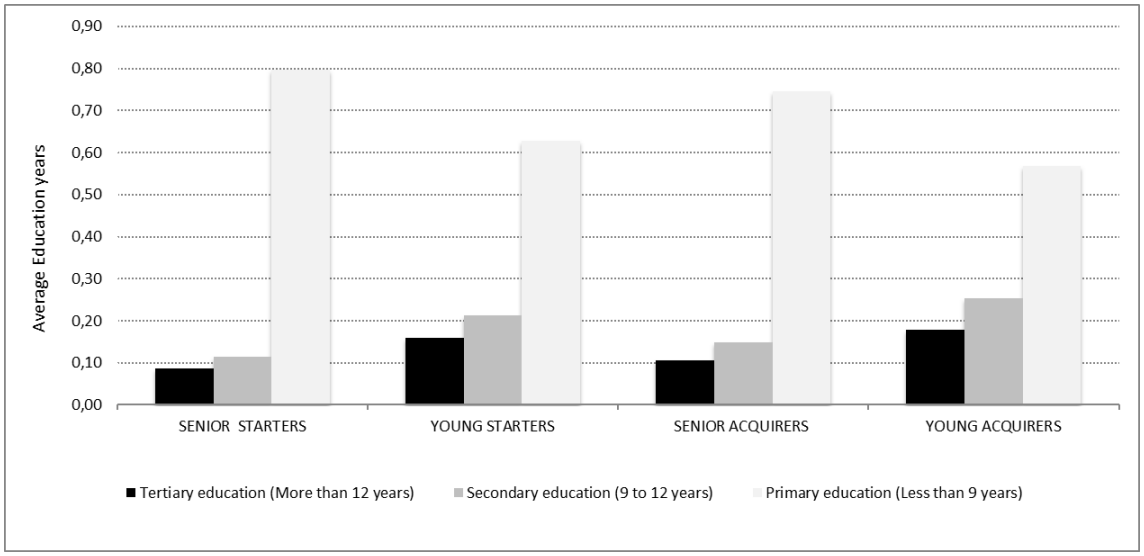
Figure 2-10 Gender (Senior/ Younger; Foundation/ Acquisition) between 2000-2009



Education (school attendance) level is one of the variables that is most commonly used to proxy for entrepreneurs' human capital. Within the present research we measure education through binary variable distinguishing individuals with superior education

from those with primary and secondary education. A high dispersion in the number of years of education is found within senior and younger entrepreneurs. Whereas the superior limit of education by SEs is 6,35 years, younger entrepreneurs exhibit, on average, more than 7, 65 years of education. This difference (Figure 2-11) should be contextualized within an historical positive evolution of the level of education in Portugal, in which younger generations have had higher access to education. Nevertheless, the level of education, even for younger entrepreneurs, is lower than the nine years of compulsory education, which stresses the fact Portugal has an extremely low educated entrepreneurial class.

Figure 2-11 Years of Formal Education (Senior/ Younger; Foundation/ Acquisition) between 2000-2009

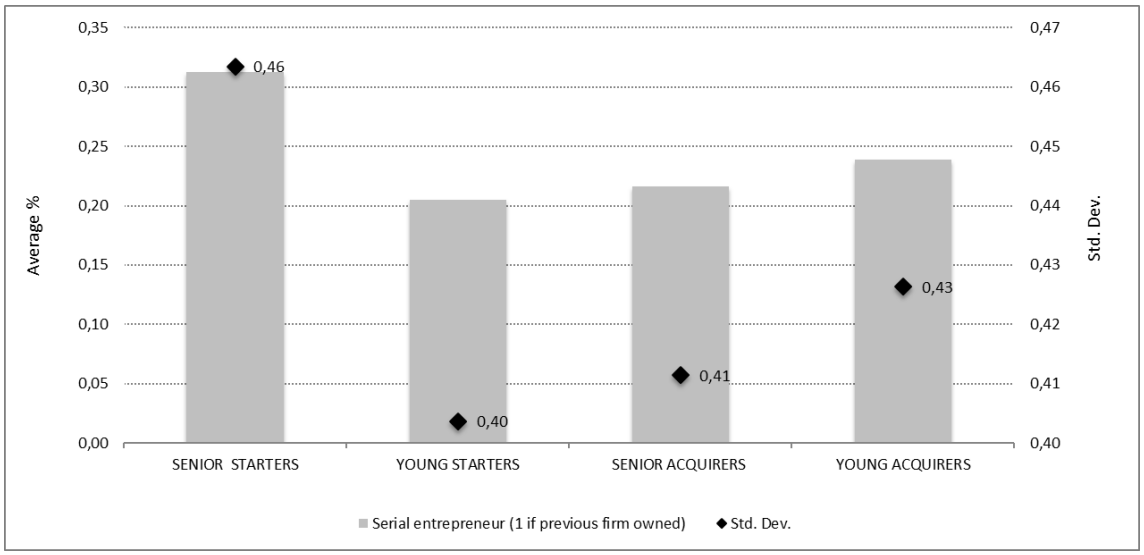


An additional dimension encompassed within human capital is individuals' professional experience. Having had previous firm founding experience (serial entrepreneurs[49]) may influence individuals' likelihood of starting a firm later in life (Fuchs, 1980; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009). Figure 2-12 shows that around 20-30% of entrepreneurs already had a previous entrepreneurial experience. This number is similar for entrepreneurs' both age cohorts. Firm acquirers exhibit higher levels of

[49] Designated as "*Serial entrepreneurs*" in the international scientific literature (Birley & Westhead, 1994; Amaral et al., 2011)

entrepreneurial experience than firm founders. This difference among founders and acquirers is even more relevant for older individuals, when compared to the younger.

Figure 2-12 Years of Entrepreneurial Experience (Senior/ Younger; Foundation/ Acquisition) between 2000-2009

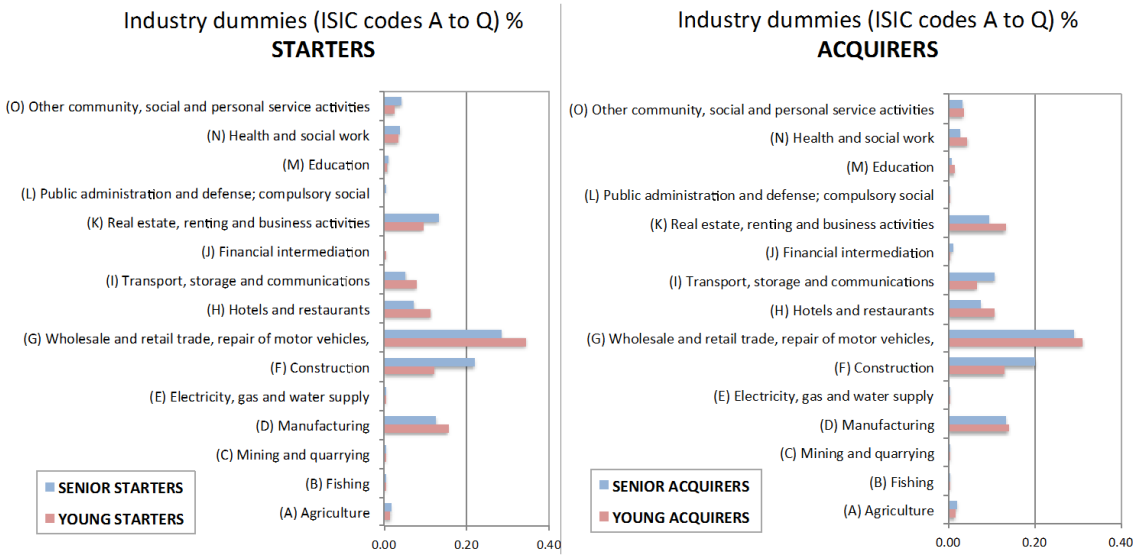


Firms' characteristics

Figure 2-13 shows the dispersion of firms created or acquired by business sector. There is a predominance of "services", particularly "wholesale and retail trade, repair of motor vehicles". This is in line with the figures for the Portuguese economy in general[50]. The importance this sector represents for younger entrepreneurs is slightly higher compared to SEs. "Manufacturing" is also a relevant business sector and it exhibits a similar profile for both younger and SEs. The most relevant difference between these two groups is in the "construction" sector, where one can observe a higher incidence for senior rather than younger entrepreneurs. Furthermore, a significant difference exists between younger and senior founders in "real state, renting and business activities" sector, and to a lower extent in the "other community, social and personal services activities".

[50] We categorize business sectors according to Economic Activity Code ("*Código de Atividade Económica" - CAE)* grouped by a two digits activity (designated by the letters "A" to "O". Manufacturing industries are identified with the letter "D". Services' sector encompasses five categories: (G) Wholesale and retail trade, repair of motor vehicles, and personal and domestic assets + (H) Hotels and restaurants + (I) Transport, storage and communication + (J) Financial Intermediation + (K) Real State, renting and business services

Figure 2-13 Industry (Senior/ Younger; Foundation/ Acquisition), 2000-11



2.3.2. Questionnaire

A unique questionnaire was constructed and delivered to SEs[51]. This questionnaire returned broad knowledge about senior entrepreneurship phenomena by focusing on the individual (demographics, human capital background, motivations and satisfaction) and organizational (firm characteristics and performance) levels.

We develop our empirical analysis using data from a unique questionnaire – specifically designed and implemented for the present study – which was sent, in 2015, to a population of entrepreneurs (in Portugal) who have started or acquired their company in 2004-2009 at the minimum age of 50. The questionnaire included both open and closed questions in order to combine flexibility with comparability. Questions were organized into two major dimensions: individual level (demographics, human capital, motivations and satisfaction) and firm-level variables (firm characteristics and performance). A pilot test was performed beforehand among a number of selected senior entrepreneurs and university professors to ensure that both the structure and questions were suitable and unambiguous.

Firms' contacts originated from official longitudinal micro-data, which was made available by the Office for Strategy and Studies (Gabinete de Estudos e Estratégia – GEE) at the Portuguese Ministry of Economy.

[51] In this section, our approach to the concept of "entrepreneur" and "entrepreneurship" focuses on all individuals that have total or partial ownership of the business and may (or may not) be employers.

The questionnaire was sent through post mail and e-mail (according with the type of address available for each company) and followed up by phone (whenever the contact was available) between January and April 2015 to all private incorporated firms that were founded between 2004 and 2009 in Portugal with at least one business owner/founder aged 50 or over and with at least one paid-employee. Throughout the data gathering and cleansing process one had to deal with the fact that around half of the official postal and e-mail addresses were not correct and in 199 questionnaires the original founders were not part of the company anymore. In the end, we were left with a reachable population of 1.671 senior entrepreneurs, out of which we obtained 181 complete and valid and complete questionnaires, accounting for a response rate of 10.83%. This group comprises both individuals who are starting/acquiring enterprises for the first time in their lives (novice entrepreneurs) and individuals who have had other entrepreneurial experiences before (serial entrepreneurs) or who may even still be running other companies in parallel (portfolio entrepreneurs).

The data obtained by this questionnaire[52] focuses on three dimensions: entrepreneurs' characteristics, motivations and firm characteristics and performance. To characterize SEs, several questions were posed about their demographics – i.e., marital status, number of children, nationality; psychological characteristics; human capital – i.e., role models (parents), educational level, entrepreneurial and management experience, industry knowledge, specific training); financial resources – i.e., previous salary, savings; and, professional status before the company's founding. Two questions were included in the questionnaire to analyze entrepreneurial motivations. Methodologically, we first follow a model put forward by the GEM (Reynolds, Hay, Bygrave, Camp, & Autio, 2000), which classifies motivations into three groups: the identification of a business opportunity, necessity/ lack of better employment options or mixed options. Second, respondents are asked to rate a ten-item list. Firm performance, regarded as business performance, is measured in two ways: volume of sales and number of employees (Parker 2009). In order to include subjective analysis of the business, we asked individuals about how they assess the current state (success or

[52] See the questionnaire in Appendix.

otherwise) of the company (Headd, 2003) and individuals were also questioned about their satisfaction with the business and the entrepreneurial process.

Entrepreneurs' characteristics

The decision to launch a company comes at around the age of 56 (with a standard deviation of 9%) with our results showing a male majority (82%), married (86%), with two or more children (68%) and of Portuguese nationality (95%). Around 32% of entrepreneurs attended higher education with 24% having completed only the first cycle of education. When comparing this with the national population (INE, 2012), these entrepreneurs hold a generally higher level of schooling than the national average[53]. The higher educational level of senior entrepreneurs is in line with the findings of Solinge (2014), Zissimopoulos and Karoly (2007), who conclude that a positive relationship exists between educational levels and senior entrepreneurship. Another variable connected with human capital is previous experience in managerial and/or board positions. This is an important dimension because around 75% of respondents hold this specific type of experience. On average, this group of people was involved in senior management for a period of 21 years. However, given that there is standard deviation of 50% of the average value, this result shows high variation. There is also a great deal of relevance in terms of the experience acquired in setting up companies. About 52% individuals report they have previously started up a company (serial entrepreneurs). Within this framework, there is an average of two companies founded by each entrepreneur (there is a significant variation as the standard deviation stands at 97% of the average). This positive relationship between entrepreneurial experience and becoming an entrepreneur later in life is in line with the findings of Fuchs (1980) and Zissimopoulos and Karoly (2009).

SEs have also built up a strong track record of prior professional experiences and especially in the sector of activity that hosts their own companies. Two thirds of SEs state that they had previous work experience in their current company's line of business, while only one third note that they had never worked in the same field. On average, SEs

[53] Among the Portuguese population, only 5% of individuals aged over 50 holds graduate degrees and 56% hold primary school level education.

had worked in the same industry for 23 years; the variation however remains high, with a 55% standard deviation rate on this average value.

Equally relevant are the entrepreneurs job occupation prior to launching their companies. Over a third declare they were in normal employment (34%), which connects with the argument that the transition to entrepreneurship comes about fundamentally via moving from employment in another firm to owning (starting/acquiring) one's own firm. However, there is an equally significant percentage of respondents (39%) who have already been business owners/ self-employed. Only 18% of entrepreneurs were formerly unemployed (spending an average of 18 months in unemployment prior to launching/acquiring their company)[54].

As regards the attitude towards retirement, a majority express the wish not to retire and aim to remain active in the labor market as long as possible. This qualitative assessment supports our quantitative results stressing the importance of non-pecuniary and active ageing entrepreneurial motivations among older individuals. Next section provides additional empirical evidence and discussion on this argument.

Entrepreneurs' motivations

For around 50% of respondents, the identification of business opportunities triggered the founding of the company. On the other hand, 29% of respondents claim "they did not have better working options". These results prove to be robust and consistent because of their similarity to those returned both by Portuguese and European entrepreneurs drawing upon the last Global Entrepreneurship Monitor available data for Portugal (GEM, 2012). In fact, according to GEM (2012), the Portuguese TEA[55] reports that 50.7% of companies in the startup phase (and in the following first 42 months of activity) started because a business opportunity was identified, whilst 21.4% emerged due to a lack of alternative employment opportunities. However, it is interesting to stress that senior individuals who engage into entrepreneurship due to lack of opportunities in the formal labor market are slightly overrepresented (29%) when

[54] It is important to mention that these previous occupations are not mutually exclusive; i.e., individuals may have experienced more than one occupational situation before becoming entrepreneurs after 50 years of age.

[55] Total Early Stage Entrepreneurial Activity (TEA) – percentage of individuals between 18 and 64 years who are involved in setting up businesses or already developing new businesses (up to 3.5 years)

compared with entrepreneurs in general (21.4%). Thus, the need (and not necessarily the willingness) to become an entrepreneur holds greater importance within the older individual group than the population in general. This result potentially aligns with Platman (2003), Parry and Taylor (2007) and Wainwright and Kibler (2013) for whom senior entrepreneurship is positively affected by the need to cope with poor pension entitlements and potentially also related with older people facing lower employability prospects (Giacomin, Guyot, Janssen, & Lohest, 2007).

The present analysis of motivations also reflects the approach followed by GEM (Reynolds et al., 2000) differentiating between those individuals who choose entrepreneurship voluntarily (pull) or those who are forced into entrepreneurship (push). Assuming that entrepreneurs acting out of need are mainly motivated by push factors and entrepreneurs acting out of opportunity engage in entrepreneurship due to the consequences of pull factors. The results (Table 2-2) show that the pull effect predominates among senior individuals with the majority engaging entrepreneurship out of opportunity. This situation proves clear given that the push factors ("Dissatisfaction with previous job", "Ensuring work for an unemployed relative or friend", "Insufficient salary or retirements funds", "Unwillingness to take other less attractive jobs") are those least mentioned by entrepreneurs as drivers of entrepreneurial activities. Table 2-2 also shows that the main reason for launching a company is the desire to remain active through work (average value of 4.3 on a scale up to 5). This motivation is in line with the strong connection existing between personal identity and professional activities with these individuals displaying a strong work attachment (Solinge, 2014). Furthermore, respondents stressed they wanted to become entrepreneurs (average value of 4.1), wanted to develop their own ideas (average value of 4) and sought to gain more independence at work (average value of 3.8). Another relevant factor stems from the perception of entrepreneurship as a means of making a contribution to society (average value of 3.7).

Table 2-2 Decision behind the creation/acquisition of the company (N=171)

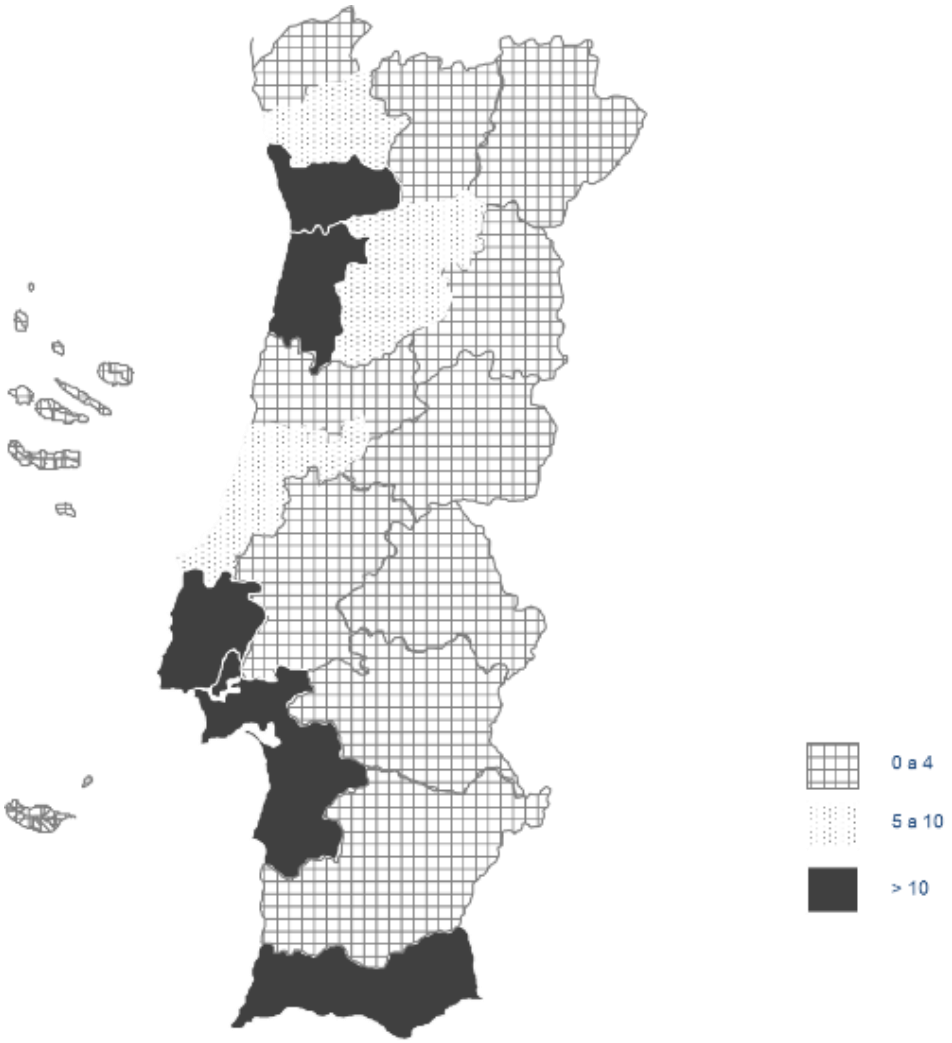
You decided to create/acquire this company because:		Completely disagree	Somewhat disagree	Neither agree nor disagree	Partially agree	Totally agree	Mean	Std. dev.
Wish to develop their own ideas	(%)	5%	*6%*	*17%*	*29%*	*43%*	4.0	0.9
	(*N*)	8	*11*	*29*	*49*	*74*		
Unwillingness to take other less attractive jobs	(%)	30%	*14%*	*20%*	*15%*	*21%*	2.8	0.3
	(*N*)	51	*24*	*35*	*26*	*36*		
Insufficient salary or retirements funds	(%)	42%	*12%*	*27%*	*10%*	*9%*	2.3	0.2
	(*N*)	71	*20*	*47*	*17*	*16*		
Wish to remain active through work	(%)	5%	*3%*	*9%*	*23%*	*59%*	4.3	1.2
	(*N*)	9	*6*	*16*	*39*	*102*		
More independence	(%)	10%	*7%*	*16%*	*26%*	*41%*	3.8	0.8
	(*N*)	17	*12*	*27*	*45*	*70*		
More flexibility	(%)	13%	*6%*	*18%*	*30%*	*33%*	3.6	0.7
	(*N*)	22	*10*	*31*	*51*	*57*		
Ensuring work for an unemployed relative or friend	(%)	36%	*10%*	*16%*	*10%*	*28%*	2.8	0.5
	(*N*)	62	*18*	*27*	*17*	*48*		
Dissatisfaction with previous job	(%)	37%	*14%*	*24%*	*15%*	*10%*	2.5	0.2
	(*N*)	64	*24*	*42*	*25*	*17*		
Wish to contribute to society	(%)	10%	*4%*	*22%*	*33%*	*32%*	3.7	0.7
	(*N*)	17	*7*	*37*	*56*	*54*		
Wish to become an entrepreneur	(%)	3%	*6%*	*15%*	*30%*	*46%*	4.1	0.9

In order to trace the profile of SEs in Portugal, Singh and DeNoble (2003)'s typology was applied. The authors (ibid.) classify entrepreneurs into three different types: *Constrained*, *Rational* or *Reluctant*. Our results show that senior Portuguese entrepreneurs are, in general, either *Constrained* or *Rational* rather than *Reluctant*, which resembles Kautonen (2008) study for Finland. As mentioned, the desire to become entrepreneurs is highlighted by most of the respondents. Therefore, despite not having any reference relative to the temporal period that this desire refers to, it may be deduced that it lasts for some time during the lives of individuals and translates into an effective start up only after turning 50 – i.e., constrained entrepreneurs. (Singh & DeNoble 2003).

Firm performance

Figure 2-14 shows that most of the firms which participate in our questionnaire, are located in the seaside of the country. Faro (N=22), Lisbon (N=46) and Oporto (N=31) account for 55% of the respondents.

Figure 2-14 Location of SEs' firms



Firm performance (as mentioned in the beginning of section 4.2) is analyzed adopting a broad perspective. Firstly, with regard of job creation, results show that firms had an average of two owners and three employees (micro companies prevail). This situation seems to align with Lewis and Walker (2011), who state that companies founded by SEs may not hold the objective of creating employment (sole businesses). In what concerns financial results, while 57% of senior entrepreneurs in our sample report profits, 21% report net losses. The most commonly identified turnover value is up to €49,999, which is slightly below that of Portuguese employers in general, with turnover figures between €50,000 and €149,999[56].These findings convey the idea that the overall objective of entrepreneurs may not connect with company growth but rather to non-pecuniary

[56] Accessed in 14th June 2017 - http://www.gep.msess.gov.pt/index.html

motivations and outcomes. In fact, around 60% entrepreneurs report that the launching/acquisition of companies did not result in high earnings. Only 36% refer to having obtained the earnings expected from their entrepreneurial activities. Furthermore, 43% refer to the earnings returned as either insufficient or very insufficient in terms of meeting their costs of living (with 45% declaring earnings as sufficient, 10% good and just 2% very good).

Despite SEs' low financial results, the level of self-reported satisfaction with their entrepreneurial activity is reasonably high (an average of 3.6 on a scale of 5). Around 72% of SEs evaluate their businesses as a success. For the case of entrepreneurs reporting dissatisfaction, bureaucratic difficulties and market conditions reveals to hold relevance (e.g. fiscal pressures; lack of transparency in the attribution of subsidies, excess of bureaucracy and the lack of state support, economic recession).

Analysis of the satisfaction level also includes initial expectations (Table 2-3) regarding the business and entrepreneurs' level of achievement for those expectations. There is a high level of dispersion in the answers obtained; on a range from 1 (totally disagree) to 5 (totally agree), entrepreneurs state they did not achieve a high income (average value of 2.2 out of 5).

Table 2-3 Expectations regarding company creation/acquisition (N=174)

Would you agree that with the establishment of your company you have achieved…		Completely disagree	Somewhat disagree	Neither agree nor disagree	Partially agree	Totally agree	Mean	Std. dev.
High income	(%)	36%	*24%*	*25%*	*12%*	*2%*	2.2	0.2
	(*N*)	64	*43*	*45*	*21*	*4*		
High degree of creativity	(%)	16%	*15%*	*24%*	*32%*	*13%*	3.1	0.4
	(*N*)	28	*26*	*43*	*57*	*22*		
High level of independence	(%)	20%	*14%*	*26%*	*27%*	*13%*	3.0	0.4
	(*N*)	34	*25*	*45*	*47*	*23*		
High level of flexibility in work hours	(%)	17%	*11%*	*24%*	*29%*	*19%*	3.2	0.4
	(*N*)	30	*19*	*42*	*50*	*34*		
High level of safety/comfort	(%)	24%	*19%*	*29%*	*22%*	*6%*	2.7	0.3
	(*N*)	43	*33*	*51*	*39*	*11*		
The income you expected at the time of creation/acquisition	(%)	23%	*21%*	*21%*	*30%*	*6%*	2.8	0.4
	(*N*)	40	*37*	*37*	*53*	*10*		
High social recognition	(%)	17%	*14%*	*29%*	*31%*	*8%*	3.0	0.5
	(*N*)	31	*25*	*52*	*56*	*14*		

The desire for self-realization (Kerr, 2017; Logan, 2012; Say & Patrickson, 2012), and

work-life balance (Kerr, 2017; Walker & Webster, 2007) may contribute to explaining why, despite the weak financial performance, a reasonably high level of satisfaction and perception of businesses success can be observed.

2.4. Main features and trends

The present article gathers a collection of indicators focuses on senior entrepreneurship in Portugal. The study draws on different sources, with different concepts of entrepreneurship, business life cycle stages, methods and samples. The application and triangulation of different data and research methodologies is important because it brings variety and scientific robustness to the study.

With regard of the role played by SE – defined as business ownership or self-employment – in Portugal, as compared to other economies, evidence shows that self-employment and entrepreneurship among older individuals accounts for a relevant form of professional occupation in the Portuguese labor market, much more than in the majority of the European countries (Eurostat, 2000-11). Though, when considering the rate of senior entrepreneurship activity as the proportion of older population who is currently active in running a new/established business or involved in the process of creating a start-up, Portugal's position falls not to the lowest but to much lower position among its EU counterparts (this study only accounts for individuals who have never been entrepreneurs before – novice entrepreneurs) (Halabisky et al., 2012). Moreover, Portugal has the lowest percentage of individuals stating that they want to start a business later in life (only surpassed by Austria and Belgium).

A relevant aspect might explain the existing gap between being self-employed and/or business owner at an older age and the exhibited lower willingness to start a business. This may be related to cultural aspects (Minola, Criaco, & Obschonka, 2016), as countries such as Portugal have low performance orientation - "the extent to which a community encourages and rewards innovation, high standards, excellence, and performance improvement" (Minola et al., 2016, p. 197) - older individuals are likely to have a quite lower motivation to start a business. This result is also reinforced by the finding obtained by Kautonen et al. (2011) that older individuals who perceive senior entrepreneurship as socially acceptable behavior exhibits higher intention to start a business. Furthermore, the lack of government policies supporting entrepreneurship

(taxes and bureaucracy) and low market dynamics (Amoros & Bosma, 2014) may also help explaining the low willingness to start a firm. These two drawbacks are stressed in our primary data, where entrepreneurs often reporting dissatisfaction state bureaucratic difficulties and market conditions as relevant issues.

According to the overall available on the financial performance of SEs' firms, our primary data shows that 90% of the firms have maximum 9 employees, among those 77% have 4 employees or less. Only 6% have more than 10 employees. This scenario is in line with Lewis and Walker (2011) for whom a one-man business project does not contribute much to economic and social development. Nevertheless, it is limiting to access the outcomes of senior entrepreneurship only according to job creation, a broader approach should be undertaken (Jennings & Beaver, 1997). Firstly, the possibility older individuals remain active and involved in the labor market applying their accumulated human capital is positive for the individual and society; secondly, from an economic perspective, senior entrepreneurship is important because it allows for extending the time to access to retirement pensions. A personal evaluation of the business is also worth of analysis. Previous studies highlight that firm performance must encompass a personal assessment (Carree & Verheul, 2012; Cooper & Artz, 1995; Jennings & Beaver, 1997). Kautonen et al. (2017) is the only study focusing on how a transition to self-employment impacts on older individuals' quality of life and income – the authors (ibid.) find a positive influence on the variation of former and a negative one on the latter. Based on our primary data, we show that SEs have a relatively reasonable level of satisfaction (an average of 3.6 on a scale of 5) and their perception of business success is also quite high (72% consider their business a success vis-à-vis being a failure).

More specifically, what drives older individuals to start a business? Our findings suggest that their start-up process is mainly connected to opportunity, in line with the general Portuguese population (GEM, 2012). Nevertheless, our primary data suggests a higher importance of necessity-driven entrepreneurship among older individuals compared to the population in general. This higher relevance of necessity-driven entrepreneurship may be a consequence of a lower rate of employability by unemployed older individuals (Giacomin et al., 2007) and the need to complement retirement pension (Parry & Taylor, 2007; Platman, 2003; Wainwright & Kibler, 2013). More specifically, our primary data shows that most older individuals are motivated to start a business to

remain active in the labor market. This motivation is in line with the strong connection existing between personal identity and professional occupation, and these individuals displaying a strong work attachment (Solinge, 2014). We also suggest this finding to be consistent with activity theory[57] (Havigrust, 1964), which postulates that individuals who remain active in life at an older age exhibit higher level of satisfaction with life. Probably, individuals who start and are able to maintain (these firms have at least 5 years of activity) the company later in life, have in common the fact that they derive satisfaction from being active through work.

A common indicator for human capital investments is formal education. Our analysis puts forward that SEs have a lower level of education compared to younger entrepreneurs, which reflects the social and cultural context of the segments of population under analysis. Regarding entrepreneurial experience, primary and secondary data show different descriptive results – whereas 52% of the questionnaire respondents state they have previously found a firm, *Quadros de Pessoal* show that only around 20-30% of the SEs have done it before.

This article examines senior entrepreneurship in Portugal over the last years. Portugal is a relevant and appropriate case study due to its older population (Figures 2-1 and 2-2). The ageing trend is common to the overall demographic structure of many societies and, consequently, the workforce (employees and employers) is also becoming markedly older. Within this context, the present article uses quantitative information and recent evidence from the academic literature to generate new knowledge on the field that can inform the design of policies and supporting mechanisms dealing with an ageing population and older workforce in the country. Moreover, the relevant questions drawn on the literature, the research methods and conceptual approaches employed may be useful to perform international benchmark analysis. While this assessment has attempted to set forth central issues and provide valuable insight into the phenomenon of senior entrepreneurship in Portugal, further empirical (statistical) analyzes can take into accord how some variables tackled so far may change or interact to better explain the dynamics of senior entrepreneurship entry and performance.

[57] This theory poses that older individuals tend to continue the roles and activities they have developed during their lives, and that the more active individuals are, the higher their satisfaction with life (Estes, 2011).

2.5. Appendix

UNIVERSITY OF LISBON – ENTREPRENEURSHIP QUESTIONNAIRE

This questionnaire has been developed by the research centres SOCIUS (at ISEG) and IN+/IST (at the University of Lisbon) in the framework of a study of companies created or acquired by individuals over 50. Having been selected under the Technical Assistance Operational Programme and co-financed by the FSE, the project aims at understanding the specific characteristics and needs of these entrepreneurs. The questionnaire must be completed by a business owner aged 50 or more at the time of creation/acquisition of the company, regardless of whether the company is still operating or not.
The data collected is completely confidential and intended solely for the purpose of academic research. If you need any clarification please contact Catarina Matos on 213922744 or .
To return the questionnaire by mail please use the envelope attached (free of charge). Please mark your answer with an "X" or in full when prompted to do so. Your assistance is much appreciated.

1. Is your company still operating at present?	
No ☐ from ____ (month) to ____ (year)	Yes ☐ –> Please proceed to question 3

2. If the company is no longer operating, why did it close? (You may tick more than one box)		
The owner retired ☐	It closed due to insolvency ☐	The company was sold ☐
One of the owners passed away ☐	It closed due to difficulties in obtaining credit ☐	Another job or business opportunity came up ☐
It was just a one-off project ☐	It closed due to a decline in sales ☐	Other reasons, which?

3. Generally speaking, which of the answers below best describes the current state of of your company? If the company no longer exists, please refer to the date when it ceased operating . (Please tick one box only)	
Success ☐	Failure ☐

4. When was the company created (year)?	**5. When did you become owner/partner (year)?**

6. What is the company's line of business? (Please tick one box only)	
Agriculture, forestry, fishing ☐	Retailing ☐
Manufacturing industries, mining ☐	Hotels and restaurant business ☐
Transportation ☐	Financial services, consulting, design ☐
Building construction ☐	Other services ☐
Wholesaling ☐	

7. What is the exact nature of the company? Describe briefly. For example: snack-bar; image consulting; manufacturing shoes for exporting

8. What is the postal code for where the company is located?	

9. In total how much did you invest to create the company?			
< 5.000€ ☐	5.000€ a 10.000€ ☐	10.001€ a 25.000€ ☐	> 25.000€ ☐

10. In 2014 the company obtained:		
Profits ☐	Losses ☐	Neither profits nor losses ☐

11. How did you become owner/partner of the company? (You may tick more than one box)					
I created/founded the company	☐	Concession	☐	Franchise contract	☐
I purchased the company	☐	Inheritance from relatives	☐	Another way:	

12. Which of the options below reflect your role in the company? (You may tick more than one box)			
I provide services or manufacture products	☐	I am in charge of financial control and have the ability to sign contracts or loans	☐
I take part in the company's management	☐	Another, which?	

13. In 2014 (or the last year when the company was operating), on average how many hours per week did you spend working at the company?					
None ☐	1 to 19 hours ☐	20 to 39 hours ☐	40 hours ☐	41 to 59 hours ☐	60 or more hours ☐

14. You decided to create/acquire this company because: (You may tick more than one box)			
You identified a business opportunity ☐		You did not have any better job prospects	☐
Another reason, which?			

15. You decided to create/acquire this company because: (1=Disagree completely; 2=Disagree somewhat; 3= Neither agree nor disagree; 4=Agree somewhat; 5=Agree completely)	1	2	3	4	5
You wanted to develop your own ideas	☐	☐	☐	☐	☐
You wanted to avoid unattractive paid employment	☐	☐	☐	☐	☐
Your salary or retirement pension was insufficient	☐	☐	☐	☐	☐
You wanted to remain active through work	☐	☐	☐	☐	☐
You wanted more independence	☐	☐	☐	☐	☐
You wanted more flexibility	☐	☐	☐	☐	☐
You wanted to provide employment to unemployed friends or relatives	☐	☐	☐	☐	☐
You were unsatisfied with the job you held	☐	☐	☐	☐	☐
You wanted to contribute to society	☐	☐	☐	☐	☐
You longed to become an entrepreneur	☐	☐	☐	☐	☐

16. Overall how do you rate your current satisfaction with the company? If the company no longer exists, please refer to the date when it ceased operating. (1=Very dissatisfied; 2=Dissatisfied; 3= Neither satisfied nor dissatisfied; 4=Satisfied; 5=Very satisfied)	1	2	3	4	5
Why?					

17. In relation to your company please let us know:	At the time it was established or acquired	At the time it stopped operating or in 2014
Total number of owners/partners		
Number of full time employees (excluding owners/partners)		
Number of employees over 50 years old (excluding owners/partners)		
Sales volume (in euros)		

18. Would you agree that with the establishment of your company you have achieved: (1=Disagree completely; 2=Disagree somewhat; 3= Neither agree nor disagree; 4=Agree somewhat; 5=Agree completely)	1	2	3	4	5
High income	☐	☐	☐	☐	☐
High degree of creativity	☐	☐	☐	☐	☐
High level of independence	☐	☐	☐	☐	☐
High level of flexibility in work hours	☐	☐	☐	☐	☐
High lev el of safety/comfort	☐	☐	☐	☐	☐
The income you expected at the time of creation/acquisition	☐	☐	☐	☐	☐
High social recognition	☐	☐	☐	☐	☐

19. How would you rate the income obtained from your company vis-à-vis your living costs?				
Very insufficient ☐	Insufficient ☐	Sufficient ☐	Good ☐	Very good ☐

20. If you were to stop having any income, for how long would you be able to live on your savings alone?				
Less than1 year ☐	1 year ☐	Between 1 and 5 years ☐	Between 6 and 10 years ☐	More than 10 anos ☐

21. In relation to your previous job, your current income is:				
Over 50% less ☐	Up to 50% less ☐	Similar ☐	Up to 50% more ☐	Over 50% more ☐

22. What was your employment status prior to creating/acquiring the company?			
Retired	☐	Self-employed	☐
Salaried worker	☐	Unpaid family worker	☐
Manager / employer	☐	Active member of a production co-op	☐
Unable to work due to physical incapacitation	☐	Unemployed	☐

23. If you were unemployed immediately prior to creating or acquiring your company, for how many months did you remain unemployed? _____ (months)

24. When do you intend to retire? If you have already retired, in which year did that happen?
_____ (year)

25. Did you have managerial / board positions throughout your career?	
No ☐	Yes ☐ –> For approximately how long in total? _____ (years)

26. Did your parents have any company or business of their own? (Please tick one box only)		
No ☐	Yes , both of my parents ☐	Yes, only one of my parents ☐

27. Had you already created any company before?	
No ☐	Yes, I had created _____ company/companies.

28. Do you currently own any other company?	
No ☐	Yes, I have partial ownership of _____ companies.
	Yes, I have full ownership of _____ companies.

29. Have you ever worked at any other company or organization that produced or provided a similar product to that of your current company?	
No ☐	Yes ☐ –> For approximately how long? _____ (years)

30. Overall do you consider yourself capable or incapable of taking risks?

Completely incapable — Completely capable

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

31. What were your educational qualifications at the time that you created or acquired the company? (Please tick one option only)			
None	☐	Post-high school course work	☐
Primary education 1st cycle – elementary school from 6 to 10 years old	☐	Bachelor (3 years)	☐
Basic education 2nd cycle – from 10 to 12 years old	☐	Undergraduate (4 years)	☐
Basic education 3rd cycle – from 12 to 15 years old	☐	Masters	☐
Highschool	☐	Doctorate	☐

32. If you have completed a university degree (bachelor, undergraduate, master or doctorate) please let us know the name/field.

33. Do you think your academic studies were important to the company? (Please tick one box only)			
Não	☐	Yes, to the creation/acquisition of the company ☐	
Sim, to the development of the company	☐	Yes, both to the development and the creation/acquisition of the company ☐	
Why?			

34. Did you attend any courses specifically designed to support company creation? (For example: Management / Sales / Entrepreneurship / Human Resources, or in the company specific sector – Catering, Sewing, etc.)	
No ☐ –> <u>Please proceed to question 36</u>	Yes ☐ –> What was the specific subject of the course(s)?

35. Do you think these courses were important to your company? <u>(Please tick one box only)</u>			
No	☐	Yes, to the company's creation/acquisition ☐	
Yes, to the company's development	☐	Yes, both to the creation/acquisition and the development of the company ☐	
Why?			

36. Below you will find a number of personality traits. Please let us know to what extent each of these features apply to you, even if one applies more than the other.

(1=Disagree completely; 2=Disagree somewhat; 3= Neither agree nor disagree; 4=Agree somewhat; 5=Agree completely)

	1	2	3	4	5
Outgoing and/or enthusiastic	☐	☐	☐	☐	☐
Argumentative and/or prone to conflict	☐	☐	☐	☐	☐
Responsible and/or self-disciplined	☐	☐	☐	☐	☐
Anxious and/or easily irritated	☐	☐	☐	☐	☐
Open to new experiences and/or receptive	☐	☐	☐	☐	☐
Reserved and/or quiet	☐	☐	☐	☐	☐
Understanding and/or caring	☐	☐	☐	☐	☐
Disorganised and/or careless	☐	☐	☐	☐	☐
Calm and/or emotionally stable	☐	☐	☐	☐	☐
Conventional and/or uncreative	☐	☐	☐	☐	☐

37. What is your marital status?

Single ☐	Married or in common law partnership ☐	Divorced ☐	Widower ☐

38. Sex: F ☐ M ☐ **39. Age:** (years) **40. Nationality:**

41. Number of children None ☐ One ☐ Two ☐ More than two ☐

42. What are the first three words that come to your mind when you think of "entrepreneurship after 50"?

43. Is there anything else related to your company that we haven't asked and you would like to share with us? For example, any support that you may or may not have had from public institutions, challenges your faced, future plans.

Thank you for filling in the questionnaire.

We would like to learn more about your experience as an entrepreneur. Could we contact you to schedule a (brief) interview? If so, please provide us with your email and/or telephone contact:

STUDY 3

3. An empirical analysis of firm creation and performance among senior entrepreneurs

3.1. Introduction

Age is one of the main determinants of entrepreneurship (Parker, 2009) and ageing represents a challenge for developed societies (EC, 1999; Foster & Walker, 2014). According to Shepherd (2015), it is timely to examine the effect societal challenges have on entrepreneurship. Despite the avowed importance of senior entrepreneurship as a vehicle to extend the participation of the older individuals in the labor market (WHO, 2002), the topic is still underdeveloped (Blackburn & Kovalainen, 2009). According to Ainsworth (2015), is important to undertake a serious evaluation of senior entrepreneurship[58].

This study aims to contribute to the research by analyzing both firm creation and performance of senior entrepreneurs. More specifically, we examine the effect of human capital on firm creation by senior entrepreneurs (SEs) and the influence of age on firm performance. Senior entrepreneurship refers to individuals aged 50 or over who intend, are in the process of, or have created a business. It includes both individuals who have never started a firm before (novice entrepreneurs) as well as those who have already started one (serial and/or portfolio entrepreneurs) (Kautonen, 2013).

Organizations started by older individuals may benefit from knowledge that was accumulated by their founders throughout their careers (Agarwal, Echambadi, Franco, & Sarkar, 2004). On the other hand, as individuals get older they are more likely to have spent some time away from the workplace due to unemployment, maternity/ health licenses, shifts a career orientation. These periods translate into knowledge depreciation, a loss of human capital stocks (Neuman & Weiss, 1995; Parker, 2013). We examine the influence human capital has on firm creation, our aim is to provide methodologically sound empirical observations leading to a better understanding of

[58] Hereafter we use the term SE(s) for Senior Entrepreneur(s).

how human capital influences firm creation. We undertake this analysis through the lens of human capital theory (Becker, 1962), distinguishing different dimensions of human capital – namely education attainment, entrepreneurial experience, industry experience, and experience as a paid employee. This theory has been adopted by entrepreneurship researchers and led to a large number of studies that analyze the links between human capital traits and firm creation (e.g. Amaral, Baptista, & Lima, 2011; Davidsson & Honig, 2003). Four hypotheses are developed based on these four variables.

Our second objective is to examine the influence age has on firm performance. Based on the theory of socioemotional selectivity (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999), we know that older individuals may perceive that their future time of life is lower than the one they already and, this, somehow may influence their life goals, shifting towards more meaningful goals. We suggest it is likely that due to the previous reasons they exhibit a business strategy with a lower orientation to growth (compared to younger individuals), and, thus, reach a lower firm performance compared to younger individuals (Ajzen, 1991; Hessels, Gelderen, & Thurik, 2008). Empirical evidence shows that there is a negative relationship between age and firm performance (De Kok et al.,2010; Gielnik, Zacher, & Frese, 2012; Li, 2015). In this study, firm performance is analyzed by the growth in sales and size.

We theoretically develop and empirically investigate the role of human capital variables on firm creation and of age on firm performance. The largest national database on firms (*Quadros de Pessoal*) is used. Our selection includes only firms which have at least one employee. Hence, we focus on employers/ business owners.

This study makes several important contributions. Firstly, we theoretically develop and empirically examine the nature of human capital on firm creation by SEs. We find that senior entrepreneurship is positively related with paid-employment and entrepreneurial experience. Secondly, we find a negative relation between age at startup and firm performance. Overall this result is in line with previous studies (De Kok et al., 2010; Gielnik et al., 2012; Li, 2015). It is an important finding due to the large database (around 200.000 respondents) adopted and its potential for generalization (previous studies adopted smaller databases, up to around 3.500 respondents).

The paper proceeds as follows: in Section 3.2., we review the theory and previous research on SE, firm creation and performance. This leads to the generation of five hypotheses to be tested. We then describe the methods we have used for data collection and analysis. Following that, we present the results of our analysis in section 3.4.. The paper concludes with Section 3.5., where we discuss our results and put forward their implications.

3.2. Theoretical background and hypothesis

3.2.1. Age, human capital and firm creation

The human capital perspective has been adopted by entrepreneurship researchers and led to a large number of studies that analyze the links between human capital traits and firm creation (e.g. Amaral et al., 2011; Davidsson & Honig, 2003). Human capital is distinguished by Bosma, Van Praag, Thurik, & De Wit (2004) in general and specific human capital related to entrepreneurial performance. The authors consider general human capital determinants such as age, education and experience as an employee whereas specific human capital is divided twofold: entrepreneurship-specific investments (experience of business ownership, experience in activities relevant to business ownership) and industry-specific investment (experience in industry).

A variety of theoretical and empirical contributions exist regarding the influence of human capital traits of the entrepreneur on firm creation. Lucas (1978) argues that individuals with higher attainment of education will have a higher likelihood of becoming entrepreneurs compared with the less educated. Through formal education, individuals obtain essential abilities to learn about markets and technology, and better identify business opportunities (Shane, 2000). Individuals with a higher education level have a higher likelihood of identifying business opportunities (Davidsson & Honig, 2003; Ucbasaran, Westhead, & Wright, 2008). Furthermore, Lazear (2004) argues that entrepreneurs must have a wider variety of skills, not only focusing on formal education whereas paid employees should have a more specialized educational background. Industry and entrepreneurial experience were highlighted by women as being important to the transition from the corporate to the entrepreneurial world (Terjesen, 2005). Individuals who have already been business owners should have obtained entrepreneurial-specific experience which is positively related to business opportunity

identification and pursuit (Ucbasaran et al., 2008). According to Cassar (2014), having experience in the industry of the firm allows the definition of more realistic expectations to the business.

Firms started by older individuals may benefit from knowledge that was accumulated by their founders throughout their careers (Agarwal et al., 2004). A stock of personal and professional skills, experience and knowledge are attributes sometimes associated with older people (Curran & Blackburn, 2001; Weber & Schaper, 2004). However, Curran and Blackburn (2001) also show that one of the reasons that may dissuade individuals from moving from a wage and salary job to self-employment is a perception of having insufficient knowledge.

Among the studies regarding senior entrepreneurship, we find a few theory-based articles (Van Solinge, 2014; Zissimopoulos & Karoly, 2007, 2009) analyzing human capital traits of the entrepreneurs, with theories ranging from occupational choice models to the theory of planned behavior to analyze the role human capital has on senior entrepreneurship entry. With respect to formal education, some authors (Logan, 2014; Solinge, 2014; Zissimopoulos & Karoly, 2007) conclude that a higher educational attainment is positively related to the likelihood of being entrepreneur at a later stage in life. On the other hand, Singh (2009) says that older individuals holding a high school diploma make them less likely to choose self-employment. According to Kautonen (2008) and Tervo (2014), the impact education has on the probability of becoming an entrepreneur later in life, must be differentiated between two types of SEs – novice (those who have never started a business before) and serial (those who have already started one or more businesses before). Senior novice entrepreneurs have a higher level of education compared to senior serial entrepreneurs, who mainly possess secondary school level qualifications (Kautonen, 2008; Tervo, 2014). This situation may be a consequence of professional and academic careers because individuals may have started their business quite young and they may not have had the opportunity to continue studying. Moreover, higher education was not common for most of the individuals.

Regarding professional experience, empirical findings show that people with entrepreneurial experience have a higher probability of becoming entrepreneurs later in life (Fuchs, 1982; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009). Thus, it

seems that habitual entrepreneurship is more common at older ages compared to novice entrepreneurship. Tervo (2014, p. 17) suggests that senior entrepreneurship "in many cases is a way of life rather than a new activity". This conclusion is contrary to the one we could draw from the results of Kautonen (2008), whose findings show that novice senior entrepreneurship is more common later in life. Kautonen (2008) develops an exploratory study based on a sample of 839 Finnish companies (started between 2000-06) and shows that for almost 60% of the SEs this has been the first entrepreneurial experience in their career span. In addition, experience in management positions has a positive influence on becoming entrepreneur at older ages (De Bruin & Firkin, 2001; Fuchs, 1982; Kautonen, Luoto, & Tornikoski, 2010; Zissimopoulos & Karoly, 2007). A preliminary study of Li (2015) developed and tested a few hypotheses in this area. The author concludes that professional experience is positively related to the business owner's age.

This study adopts the human capital theory to test the idea that human capital is connected to ageing due to the fact that, as individuals get older, they tend to have accumulated more human capital. Although we predict that knowledge is critical to starting a business, previous research on senior entrepreneurship gives only a very imprecise understanding of what types of learning are helpful. We unveil this association by analyzing different variables encompassing this concept. In this research, we examine firm creation by seniors on a range of four variables measuring human capital – level of education, experience as paid-employee, entrepreneurial experience, and industry experience.

The following hypotheses regarding the role of human capital on firm creation are proposed:

Hypothesis 1. *Having a higher level of education (vis-à-vis a lower) is significantly and positively associated with senior entrepreneurship.*

Hypothesis 2. *Having industry experience (vis-à-vis not having) is significantly and positively associated with senior entrepreneurship.*

Hypothesis 3. *Having paid employee experience (vis-à-vis not having) is significantly and positively associated with senior entrepreneurship.*

Hypothesis 4. *Having entrepreneurial experience (vis-à-vis not having) is significantly and positively associated with senior entrepreneurship.*

3.2.2. Age and firm performance

As it was previously mentioned, an important argument that has been discussed in the literature is the fact that older individuals' longer life span and careers allow for the accumulation of different types of resources – particularly human capital (Agarwal et al., 2004) – which can be important to engage into entrepreneurship (Amaral et al., 2011; Davidsson & Honig, 2003), and foster business performance (Bates, 1990; Baptista, Karaöz, & Mendonça, 2014; Gimeno, Folta, Cooper, & Woo, 1997; Parker, 2009; Unger, Rauch, Frese, & Rosenbusch, 2011).

Based on the human capital theory postulated by Becker (1962), we expect that a higher human capital accumulation, due to an individual's longer life span, would lead to higher firm performance. Human capital theory was originally developed to estimate employees' income distribution from their investments in human capital (Mincer (1974), Becker (1962)). In addition, older age may be related to knowledge depreciation as long as during working lives, individuals spend time away from the workplace which translates in depreciation of human capital stocks. This depreciation may mitigate the positive relationship between human capital and SEs' performance (Neuman & Weiss, 1995; Parker, 2013).

Psychology and gerontology theories might help explaining the non-straightforward relationship between human capital and firm performance. Firstly, in accordance to socioemotional selectivity theory (Carstensen, 2006; Carstensen et al., 1999), older individuals are more focused on emotional goals than knowledge acquisition ones (more dominant in younger individuals) and their lower perception of future time also influences their goals (Carstensen, 2006; Carstensen et al., 1999). This theory contributes to enhancing our understanding of SEs' business goals. Secondly, according to the lifespan theory[59] (Baltes et al., 1999), older age is associated with a decrease in cognitive capabilities and thus, potentially negatively influence firm performance. These two theories are important to contextualize the potential stage of life of the older individual.

[59] The lifespan theory postulates that from the moment of conception and during life, processes of "acquisition, maintenance, transformation, and attrition in psychological structures and functions are involved (Baltes et al., 1999, p. 472)".

A study by Lévesque and Minniti (2006) proposes that older individuals are less likely to start a business because outcomes obtained from firm creation are only generated in the long run and they value more activities that generate outcomes in the present due to then potentially lower life span. This argument may also influence firm performance because SEs may value more benefits extracted in the present such as self-realization (Kerr, 2017; Logan, 2012; Say & Patrickson, 2012), improved work-life balance (Kerr, 2017; Walker & Webster, 2007) instead of following exclusively a growth-oriented strategy (Gray, 2004). Gray (2004) examined the effects of age on growth-orientation and observed that the latter decreases as individuals' age[60].

Empirical evidence regarding senior entrepreneurship suggests a negative relationship between entrepreneurs' age and business performance (De Kok et al., 2010; Gielnik et al., 2012; Gray, 2004; Li, 2015). Gielnik et al. (2012), based on the lifespan and upper echelons[61] theories, through a qualitative[62] study, examine the relationship between age and business performance and the moderating effect of focusing on opportunities and mental health. The authors conclude that there is a negative relationship between age and firm growth[63]. And that individuals with high mental health, exhibit a positive effect of focus on opportunities, thereby mitigating the negative effect of age on firm performance.

Thus, firstly, based on propositions from the human capital theory, the effect of human capital depreciation, socioemotional selectivity and lifespan theories; secondly, in line with findings from the domain of senior entrepreneurship performance (De Kok et al., 2010; Gielnik et al., 2012; Gray, 2004; Li, 2015); and, thirdly, due to the positive link between goals (entrepreneurial attitude) and firm performance (Hessels et al., 2008), and in line with the theory of planned behavior – for which intentions are the precedent of behavior (Ajzen, 1991), we argue for the existence of a negative relationship between senior entrepreneurship and firm's performance.

[60] However, decreasing with age, firm growth is still the choice preferred – almost 40% of business owners have the strategic objective of continuing to grow their firms, 26% desire to keep the level of performance, and 12% are averse to growth.

[61] The upper echelons theory (Hambrick & Mason, 1984) poses the hypothesis that "*organizational outcomes – strategic choices and performance levels – are partially predicted by managerial background characteristics".*

[62] Face-to-face interviews and a questionnaire to 84 individuals.

[63] For the analysis of firm growth, the authors consider percent changes in sales, profit, transaction volume, income, and number of employees in the year 2007 compared to the previous year.

Hypothesis 5. *Senior entrepreneurs are more likely to underperform younger entrepreneurs in terms of job creation and sales.*

3.3. Methodology

3.3.1. Data sources

We utilize the *Quadros de Pessoal* database (QP) to investigate the impact human capital has on firm creation and performance among SEs. The distinctive feature of the data is that it is a longitudinal linked employer-employee data (LEED) which includes extensive information on all private firms, establishments, workers and business owners in the Portuguese economy since 1982. Thus, it allows for the collection of information of both nascent and existing firms. For each firm, data is available for size, age, location, sector, and number of establishments. The survey is applied annually to all Portuguese firms which have at least one employee and is compulsory for firms with more than ten employees. The QP identified around 200.000 firms started between 2000 and 2009 by SEs. The dataset is confidential and provided by the Portuguese Ministry of Social Security. Our sample only accounts for firms started by individuals aged 50 or over and it is limited to firms with only one founder, to enable a more accurate analysis of the effect of the individual's human capital traits on firm creation and performance. Furthermore, we distinguish firms by the mode of entry – startup vis-à-vis acquisition, (in line with the results of Ainsworth and Hardy (2008) for whom SEs to avoid risks prefer to acquire firms instead of starting from scratch.

3.3.2. Variables

The variables used in the empirical estimation are presented in table 3-1, together with their descriptive statistics. This study analyzes two dependent variables – firm creation and firm performance. Firstly, firm creation includes the individuals starting a firm between 2000 and 2009, we compare younger and senior entrepreneurs. Our second dependent variable is firm performance and it is measured by analyzing growth in sales and growth in job creation. Growth in sales (and size) is calculated by the variation of the log of sales (number of employees) from one year to the previous one.

Table 3-1 Summary statistics

Variable			SENIOR STARTERS				YOUNG STARTERS				SENIOR ACQUIRERS				YOUNG ACQUIRERS			
			Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
logpemp_lag1	Log (Size t) - Log (Size t-1)	Variation of the Log of the number of employees of the firm for 2 subsequent years	0,11	0,58	-3,89	4,80	0,19	0,67	-4,22	5,48	0,28	0,85	-4,16	6,20	0,43	0,98	-3,99	6,20
logvvend_l~1	Log (Sales t) - Log (Sales t-1)	Variation of the Log of the amount of sales of the firm for 2 subsequent years	3,09	4,91	-6,85	18,47	4,03	5,19	-6,01	19,10	2,92	5,22	-6,98	21,76	3,98	5,68	-8,16	19,83
AGE	Entrepreneur's Age	The age of the founder in years	55,62	4,55	50,00	75,00	37,16	6,72	18,00	49,00	56,87	5,09	50,00	76,00	38,86	6,68	18,00	49,00
AGEint2	Age interval (1 if 'senior' >50 years old)	Variable =1 if the founder is 50 years of age, and 0 otherwise	1,00	0,00	1,00	1,00	0,00	0,00	0,00	0,00	1,00	0,00	1,00	1,00	0,00	0,00	0,00	0,00
SEX	Gender (1 if Female Entrepreneur)	Variable = 1 if founder is female, and 0 if it is male	0,24	0,43	0,00	1,00	0,28	0,45	0,00	1,00	0,29	0,45	0,00	1,00	0,31	0,46	0,00	1,00
SERIAL	Serial entrepreneur (1 if previous firm owned)	Variable = 1 if individual has founded at least one firm in the past, and 0 otherwise	0,31	0,46	0,00	1,00	0,20	0,40	0,00	1,00	0,22	0,41	0,00	1,00	0,24	0,43	0,00	1,00
HABIL3	Tertiary education (More than 12 years)	Variable = 1 if founder has more than 12 years of education, and 0 otherwise	0,09	0,28	0,00	1,00	0,16	0,37	0,00	1,00	0,11	0,31	0,00	1,00	0,18	0,38	0,00	1,00
HABIL2	Secondary education (9 to 12 years)	Variable = 1 if founder has between 9 and 12 years of education, and 0 otherwise	0,12	0,32	0,00	1,00	0,21	0,41	0,00	1,00	0,15	0,36	0,00	1,00	0,25	0,43	0,00	1,00
HABIL1	Primary education (Less than 9 years)	Variable = 1 if founder has less than 9 years of education, and 0 otherwise	0,80	0,40	0,00	1,00	0,63	0,48	0,00	1,00	0,75	0,44	0,00	1,00	0,57	0,50	0,00	1,00
PE	No. of years as a paid-employee	Number of years since founder entered the labor market	4,02	6,85	0,00	47,00	4,02	4,73	0,00	39,00	3,22	6,01	0,00	53,00	3,66	4,68	0,00	36,00
CHGSECT	Different industry experience (1 if Yes)	Number of industries founder worked before industry prior to founding	0,05	0,22	0,00	1,00	0,06	0,24	0,00	1,00	0,12	0,32	0,00	1,00	0,16	0,37	0,00	1,00
AGEfirm	Firm age (years)	Number of years since the firm was created	4,99	2,23	1,00	9,00	4,35	2,10	1,00	9,00	20,76	14,18	3,00	165,00	13,95	11,80	3,00	166,00
pemp	Size (No. Workers whithin the firm)	Number of workers	4,42	7,09	1,00	198,00	4,89	8,56	1,00	357,00	8,89	23,15	1,00	494,00	9,98	27,36	1,00	494,00
vvend	Sales (million €)	Volume of sales (in millions)	0,24	1,24	0,01	105,00	0,23	0,96	375,00	198,00	0,69	9,31	0,00	2810,00	0,80	4,27	0,00	408,00
logpemp	Log Size	Log of the number of workers of the firm	1,07	0,83	0,00	5,29	1,12	0,87	0,00	5,88	1,41	1,06	0,00	6,20	1,44	1,11	0,00	6,20
logvvend	Log Sales (€)	Log of the volume of sales of the firm	11,44	1,24	8,52	18,47	11,45	1,24	5,93	19,10	12,07	1,47	7,32	21,76	12,11	1,50	8,21	19,83
CSOC	Initial capital (million €)	Volume of initial capital (in millions)	0,02	0,25	0,00	25,00	0,02	0,47	1,00	100,00	0,12	1,41	0,00	218,00	0,11	1,73	40,00	300,00
logCSOC	Log Initial capital (€)	Log of initial capital invested in the firm	8,98	0,94	6,21	17,03	8,97	0,93	0,00	18,42	9,59	1,51	0,00	19,20	9,52	1,47	3,69	19,52
varUNEMP	Unemployment rate variation	Unemployment rate variation	0,63	0,77	-0,50	1,90	0,62	0,77	-0,50	1,90	0,58	0,76	-0,50	1,90	0,57	0,74	-0,50	1,90
	Industry dummies	Industry dummies (ISIC codes A to Q)																
	Regional dummies	Regional dummies (NUTS II - 7 regions)																
	Year dummies (2000 to 2009)	Year dummies																
	No. Obs.	Number of observations	30.374				117.407				103.974				167.263			

As explanatory variables of firm creation, we use four different measures of human capital: level of education, paid-employee experience, entrepreneurial experience, and industry experience. General human capital is empirically approached using education and paid-employee experience (following the suggestion by Bosma et al., 2004). Education is measured by using the number of years of education (*Education*) reported in the database *Quadros de Pessoal*, and paid-employee experience is measured by the number of years the individual spent as a paid-employee (*Paid-employee experience*). On the other hand, specific human capital is analyzed by considering entrepreneurial experience and industry experience (Bosma et al., 2004). Entrepreneurial experience is measured by a binary variable indicating whether the individual has already been a business owner or not (*Entrepreneurial Experience*). Industry experience, also a binary variable, refers to the existence or not of previous experience in the business sector of the current business (*Industry Experience*).

The second part of the paper considers the effect of age on firm performance as an explanatory variable. Age is a binary variable, indicating whether the individual ages 50 or over, or the opposite (*Age*).

We control for several entrepreneur, firm, and context-specific variables documented in the literature associated with firm creation and performance. We include an indicator variable representing whether the entrepreneur is male (*Gender*; female = 1; male = 0). Regarding firm-specific variables, our study comprises the following variables – firm age, number of employees (empirically represented as the log of the number of employees), volume of sales (empirically represented as the log of the amount of sales in euros) and of initial capital (empirically represented as the log of the amount of initial capital in euros). To examine the context of firm creation and performance, we include *Industry dummies* related to ISIC codes A to Q, to control for idiosyncratic industry characteristics and we include *Regional dummies* (NUTS II - 7 regions) to control for the location of the business. Moreover, a dummy was also included regarding the year of creation – from 2000 to 2009 (*Year dummy*). *Unemployment rate variation* was included the influence it has on senior entrepreneurship (Biehl et al., 2014).

3.4. Results

The results of the probit regressions explaining firm creation are presented in Table 3-2. Previous entrepreneurial experience and the number of years an individual spent in paid-employment have an expected positive influence on firm creation (and are thus consistent with hypotheses 3 and 4). The relationship is not straightforward regarding the other human capital variables. Educational attainment seems to be relevant only for younger entrepreneurs, not having a significant effect for SEs. Inconsistent with H2, having previous experience in the industry is significantly and negatively associated with firm creation (except for senior starters). Thus, it seems that, on average, older individuals are more likely to acquire a firm in an industry they have never worked before.

Table 3-2 Firm creation by Younger and Senior Entrepreneurs / Starter and acquires (2000-2009)

Variables	**Young Starter**	**Senior starter**	**Young Acquire**	**Senior Acquire**
Entrepreneur Demographics				
Gender (1 if Female)	0.186***	0.700***	0.248***	0.833***
	[0.036]	[0.196]	[0.035]	[0.154]
Human Capital				
Serial entrepreneur (1 if past entrep. exp)	0.904***	0.890***	0.803***	0.683***
	[0.037]	[0.211]	[0.037]	[0.165]
Secondary education (9 to 12 years)	0.379***	0.301	0.630***	0.260
	[0.038]	[0.242]	[0.037]	[0.194]
Tertiary education (More than 12 years)	0.037	-0.250	0.403***	-0.331
	[0.052]	[0.359]	[0.048]	[0.282]
No. of years as a paid-employee	0.057***	0.097***	0.067***	0.083***
	[0.002]	[0.008]	[0.002]	[0.006]
Experience in the industry (1 if past exp.)	-0.328***	-0.194	-0.483***	-0.652**
	[0.046]	[0.285]	[0.049]	[0.278]
Firm characteristics				
Firm age (years)	-0.004***	-0.011	0.007***	0.008
	[0.001]	[0.009]	[0.001]	[0.005]
Log Size (log No. workers)	0.514***	0.450***	0.476***	0.598***
	[0.020]	[0.107]	[0.020]	[0.101]
Log Sales (€)	0.032*	0.170*	0.045***	-0.081
	[0.017]	[0.097]	[0.017]	[0.083]
Log Initial capital (€)	-0.036***	-0.153**	-0.010	0.023
	[0.013]	[0.071]	[0.013]	[0.064]
Industry and Regional characteristics				
Industry dummies (ISIC codes A to Q)	Yes	Yes	Yes	Yes
Regional dummies (NUTS II - 7 regions)	Yes	Yes	Yes	Yes
Macroeconomic context and Regional characteristics				
Year dummies (2000 to 2009)	Yes	Yes	Yes	Yes
Unemployment rate variation	-0.373***	-0.380***	-0.509***	-0.571***
	[0.018]	[0.093]	[0.021]	[0.104]
Constant	-5.910***	-9.312***	-6.610***	-7.751***
	[0.171]	[0.951]	[0.171]	[0.876]
Observations	325,387	145,098	325,387	145,098

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

* significant at 10%; ** significant at 5%; *** significant at 1%

Regarding the influence of age on firm performance, Tables 3-3 and 3-4 shows that as age increases, firm performance decreases, both in terms of growth in sales and employment. The estimates show that, as proposed in (H5), younger entrepreneurs achieve higher levels of performance - age is negatively associated with firm performance. More specifically, from Table 3-3, we find that SEs are likely to generate less jobs than their younger counterparts. And Table 3-4 shows that SEs are likely to

generate lower sales than their younger counterparts only when individuals acquire firms. Even though not significant, a positive relationship between entrepreneur's age and growth in sales is found when the firm is created from scratch.

Table 3-3 Firm size growth, OLS specification (2000-2009)

Size (growth)	Firm Start-up	Firm Acquisition
Entrepreneur Demographics		
Age interval (1 if 'senior' >50 years old)	-0.026***	-0.074***
Gender (1 if Female Entrepreneur)	0,005	0.006*
Human Capital		
Serial entrepreneur (1 if past entrep. exp)	0.053***	0.208***
Secondary education (9 to 12 years)	0,001	-0.028***
Tertiary education (More than 12 years)	0,006	-0.022***
No. of years as a paid-employee	0.001***	0
Different industry experience (1 if Yes)	0.365***	0.963***
Firm characteristics		
Firm age (years)	-0.057***	-0.002***
Log Sales (€)	0.011***	0.130***
Log Initial capital (€)	0.029***	0.020***
Industry and Regional characteristics		
Industry dummies (ISIC codes A to Q)	Yes	Yes
Regional dummies (NUTS II - 7 regions)	Yes	Yes
Macroeconomic context		
Year dummies (2000 to 2009)	Yes	Yes
Unemployment rate variation	-0.524***	-0.570***
Constant	0.931***	-0.582***
No. Observations	147781	271237
R-squared	0,285	0,363

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3-4 Firm sales growth, OLS specification (2000-2009)

Sales (growth)	Firm Start-up	Firm Acquisition
Entrepreneur Demographics		
Age interval (1 if 'senior' >50 years old)	0,02	-0.411***
Gender (1 if Female Entrepreneur)	0,004	-0.029*
Human Capital		
Serial entrepreneur (1 if past entrep. exp)	0.082***	0.854***
Secondary education (9 to 12 years)	0.232***	0,02
Tertiary education (More than 12 years)	0.156***	0.317***
No. of years as a paid-employee	-0.004*	-0,001
Different industry experience (1 if Yes)	1.403***	7.028***
Firm characteristics		
Firm age (years)	-1.328***	-0.035***
Log Size (log No. workers)	0.096***	0.229***
Log Initial capital (€)	0.122***	-0.023***
Industry and Regional characteristics		
Industry dummies (ISIC codes A to Q)	Yes	Yes
Regional dummies (NUTS II - 7 regions)	Yes	Yes
Macroeconomic context		
Year dummies (2000 to 2009)	Yes	Yes
Unemployment rate variation	-3.242***	-4.167***
Constant	14.313***	9.574***
No. Observations	147781	271237
R-squared	0,485	0,477

* significant at 10%; ** significant at 5%; *** significant at 1%

3.5. Discussion

3.5.1. A summary and interpretation of the results

This study empirically investigates the role of age on firm creation and performance. We distinguish entrepreneurs by age cohort (younger and senior) and mode of entry (startup and acquisition). More specifically, we examine the influence of human capital traits of the entrepreneur (such as entrepreneurial experience, educational level, experience as paid employee, and industry experience) on firm creation.

We find that SEs are more likely to have previous entrepreneurial experience. This finding is also aligned with other previous studies (Fuchs, 1980; Logan, 2014; Tervo, 2014; Zissimopoulos & Karoly, 2009). A recent study by Li (2015) also finds entrepreneurial experience to have a positive influence on firm creation at an older age but not resulting in a positive impact on firm performance. On the other hand, experience in the industry negatively affects firm creation. Future research on the topic should encompass a variable examining the effect of industry diversity experience (e.g.

to examine the effect of Jack-of-all-trades of Lazear (2004)) on firm creation. Another aspect of human capital examined is paid-employment experience. Our results show that the number of years as a paid-employee has a positive and significant influence on firm creation. This is in line with the result of Li (2015), for whom professional experience is positively associated with senior entrepreneurship.

Regarding educational attainment, no significant effect is found for SEs (having secondary education has a positive effect on firm creation for younger entrepreneurs). Our results are not aligned with previous studies associating educational attainment and firm creation (Logan, 2014; Solinge, 2014; Zissimopoulos & Karoly, 2007), which found a positive relationship between older age and firm creation. Nevertheless, we think our findings to be credible due the large database adopted, which accounts for around 200.000 firms. Our data has some specificities - an important aspect is the fact that we focus on the Portuguese context and individuals aged 50 or over account for a segment of the population with lower literacy (INE, 2011). Moreover, these 200.000 firms are owned by exclusively one business owner to better account for the effect of human capital traits, still this also represents a limitation as it does not encompass the whole universe of firms started by older individuals (and do not account for the whole population of older self-employed individuals). Based on previous research, we offer two explanations for the results found. Firstly, spells of unemployment and/or time spent away from the labor market leads to a depreciation of individuals' human capital (Neuman & Weiss, 1995; Parker, 2013). Thus, educational attainment of older individuals, probably acquired a long time ago, have potentially depreciated and do not represent an asset anymore. This idea is even strengthened by the fact that younger entrepreneurs do exhibit a positive association with education. Secondly, higher levels of general human capital may facilitate transitions into wage employment, implying a reduction of entrepreneurship (Evans & Leighton, 1989).

Based on our study, our findings suggest that while entrepreneurial and paid-employment experience increases the probability of becoming a nascent entrepreneur, we do not know how do these traits influence firm performance. For example, according to Li (2015), we know that professional experience is positively related to firm creation and no significant result was found regarding its influence on firm performance. This possible difference between the roles of human capital traits of the SE on firm creation

versus firm performance has been highlighted by Davidsson and Honig (2003). The explanation suggested by those authors is that although human capital may facilitate firm creation, it might not be enough to result in a higher firm performance, due to the fact that the characteristics needed to better develop a firm might be different from those needed for firm creation. Therefore, we suggest future research on age and performance ought to examine the relationship between human capital traits of the SE and his/ her firm performance. Moreover, in line with Unger et al. (2011), future studies should also analyze the influence of human capital on firm creation and/or firm performance by considering the potential moderator effect of situation characteristics. For example, having been unemployed before starting the business may influence the effect of human capital traits (as concluded by Baptista et al., 2014 for the relationship with firm survival).

People indicating that one of their goals is achieving employment growth, generate more employment and people who indicate that a higher expected income is an important motive to become self-employed indeed make more profits (Hessels et al., 2008). Due to their career stage, we suggest that older individuals are less oriented to grow the firm (Gray, 2004). Our results confirm this hypothesis - firms held by SEs achieve a lower performance (cf. De Kok et al., 2010; Gielnik et al., 2012; Li, 2015 for similar results).

We mention three limitations of this study. First, the study deals with one country, that is, Portugal, with its own cultural, social, economic and political characteristics and challenges. Second, we analyzed the period before the major effects of the financial and economic crisis. Future research should compare this period with an ex-post one. Third, as our study is based on established firms, we do not know about the role of human capital traits on individuals who drop out early, intended but did not engage in entrepreneurial activities, nor of those who did not want to engage in entrepreneurial activities.

3.5.2. Implications

Entrepreneurial and paid-employee experience appears to be a good investment by increasing the probability of someone in the older population entering into entrepreneurship still requires further research. Nevertheless, whether these

investments also lead to higher firm performance. These findings should be of importance to firms seeking to promote an intrapreneurial environment. Age management might benefit from this information and try to combine it with other resources and partnerships they might have in order to complement this knowledge to ensure high firm performance too.

The fact that entrepreneurial experience and paid-employee experience are positively related to firm creation and, on the other hand, industry experience is negatively associated, may allow us to suggest that older individuals who start businesses may feel more confident to start a firm if they have already started one before and that they may do it in a new sector, instead of continuing from one that they have already been working on.

From a public policy perspective, the fact that SEs underperform compared to younger entrepreneurs, should enlighten decision makers that the promotion of senior entrepreneurship ought not to exclusively contribute to economic growth by analyzing indicators such as employment generation and sales. The fact that older individuals are able to apply their human and social capital accumulated during their lives, as well as feel useful and active, creating and developing businesses that contribute to the dynamism of a location, may be seen as an advantage of senior entrepreneurship per se to. This conclusion is in line with Lewis and Walker (2009). Nevertheless, we think it must not be seen as something negative but as a feature of senior entrepreneurship.

3.6. Conclusion

Using a population of almost 200.000 entrepreneurs we investigate the influence of age on firm creation and performance, differentiating entrepreneurs by age cohort and mode of entry. More specifically, we examine the effect of human capital traits of the SE on firm creation. Firstly, our empirical analysis shows that older individuals more likely to start businesses are those with entrepreneurial experience and who have spent more years as paid-employees. On the other hand, SEs starting a business are more likely to have a lower level of education. Secondly, consistent with previous research, we find that firms created by older individuals exhibit a lower firm performance, in terms of growth in sales and employment, compared to younger individuals.

STUDY 4

4. Business satisfaction among senior entrepreneurs: the effect of industry experience and unemployment status

4.1. Introduction

There is a need for a deeper conceptualization and empirical evaluation of performance by SEs (as put forward by Ainsworth (2015) and Blackburn & Kovalainen (2009) and validated empirically by Gielnik et al. (2012) and Kautonen et al. (2017)). The fact that population ageing is currently one of the greatest societal challenges (UN, 2015; EC, 1999; Foster & Walker, 2014) is generating research attention and policies designed to foster active ageing and older individuals' connection to the labor market are needed (Foster & Walker, 2014; Kulik, Ryan, Harper, & George, 2004; Walker, 2006). There is a general conviction among policy-makers and academics that individuals should be able to play active roles in society until later in life through, for example, a new or extended career for those workers who desire or need to remain engaged in the labor market (Cahill, Giandrea, & Quinn, 2006; Curran & Blackburn, 2001). Although old age can be seen as an inevitable period of disengagement and withdrawal from roles and relationship (Cumming et al., 1960), various studies show that, in fact, many older individuals are willing to (and continue to) participate in the labor market through self-employment and entrepreneurship (Singh & DeNoble, 2003; Kautonen & Minniti, 2014; Kautonen, Kibler & Minniti, 2017). Senior entrepreneurship allows for prolonging the value of human and social capital accumulated over older individuals' lifetime (Parker, 2009). Additionally, it contributes to individuals' quality of life (Kautonen et al., 2017), it helps mitigating the rise in public pensions' costs (Kautonen, 2008; Zhang, 2008), and has potential positive impact on economic growth (Zhang, 2008). Much of the extant (and scarce) literature on senior entrepreneurship has covered a number of factors associated with business motivations, intentions and start-up at older ages. However, apart from some exceptions – there is an evident paucity of studies examining senior

entrepreneurs' outcomes. While these studies delivered useful insights on the phenomenon of senior entrepreneurship, not taking into account a subjective measure of performance, such as business satisfaction, leads to a somehow weak assessment of entrepreneurship among older individuals. Publications have been acknowledging the importance of analyzing success according to a broader perspective, not merely focused on a financial one (Amoros & Bosma, 2014; Block & Koellinger, 2009; Hamilton, 2000; Headd, 2003; Jennings & Beaver, 1997; Welter, Baker, Audretsch, & Gartner, 2016) Subjective performance might have an effect on the effort the individual puts on the business and on its survival. On the other hand, if senior entrepreneurship is deemed a desired and favorable option by many individuals and a potential mechanism to promote active ageing (WHO, 2002), it is particularly important to understand the wellbeing or satisfaction (and its determinants) senior entrepreneurs derive from business creation and development. Surprisingly, so far, among the extant literature only Kautonen et al. (2017) assess how both monetary and non-monetary outcomes are associated with senior entrepreneurs' wellbeing. Furthermore, older individuals' longer life spans and careers allow for the accumulation of human capital (Parker, 2009). Therefore, there is a need for research on the effect of work history on business satisfaction of senior entrepreneurs.

We build on the concept of procedural utility (Frey, Benz, & Stutzer, 2004) to acknowledge for the fact that older individuals extract utility from outcomes obtained in the present (Lévesque & Minniti, 2006) and also from both monetary and non-monetary ones (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999), in opposition to traditional occupational models. Secondly, older individuals' longer life spans and careers allow for the accumulation of human capital (Parker, 2009) that can be important to firm start-up and development; however, on the other hand, as time elapses, SEs' human capital may also depreciate (Neuman & Weiss, 1995; Parker, 2013) and cause a negative impact on business performance (Parker, 2013). Therefore, we draw on continuity theory (Atchley, 1989) to account for these two opposite effects of SEs' human capital - accumulation and depreciation over time.

In order to test our research hypotheses, we use primary data obtained through a unique questionnaire on business satisfaction among older individuals (using a 5-point Likert-type scale for "business satisfaction" as the dependent variable, in line Block &

Koellinger, 2009). The survey – specifically designed and implemented for the present study – was sent, in 2015, to a population of entrepreneurs (in Portugal) who have launched their company by the age of 50 or over in 2004-2009. We focus on 145 entrepreneurs in mature firms (with more than 5 years old) started by individuals aged 50 or more. Study of senior entrepreneurship in the Portuguese context holds particular academic and policy relevance as the country has one of the most aged populations worldwide (UNFPA, 2013).

Overall the present paper brings a contribution by (i) merging different conceptual approaches, namely human capital with socioemotional selectivity and continuity theories; (ii) adopting continuity theory to explain the effect of human capital on business satisfaction; (iii) extending the current – and scarce – knowledge on SEs' subjective performance (i.e., business satisfaction); (iv) empirically testing individuals' entrepreneurship-related outcomes through a unique questionnaire; (v) confirming, through our econometric analysis, the hypotheses that: although business satisfaction is positively associated with both monetary and non-monetary aspects the latter shows a slightly stronger effect; individuals' experience within the same industry is positively associated with business satisfaction; and finally, unemployment spells (higher than 12 months) prior to business start-up negatively impact business satisfaction and, finally, (v) stimulating a number of policy and practitioner questions.

The article proceeds as follows. Section 4.2 discusses the theoretical background on senior entrepreneurship and business satisfaction, setting the basis for a set of research hypotheses. Section 4.3 discusses the data source, the constructing process and describes the data set. Section 4.3.3 reports the results, followed by a discussion of the findings and implications for theory and practice in Section 4.5. Finally, Section 4.6 concludes the article.

4.2. Theoretical background and hypotheses

A limited number of studies (Alstete, 2008; Block & Koellinger, 2009; Bradley & Roberts, 2004; Carree & Verheul, 2010; Cooper & Artz, 1995; Kautonen & Palmroos, 2010; Shir, 2016) have analyzed business satisfaction. Although the main focus of these studies is not senior entrepreneurship, the entrepreneur's age is used as a control variable. With regard of the influence of age on business satisfaction, the literature

presents mixed evidence. While, for example, Block and Koellinger (2009) find a negative effect, for Carree and Verheul (2011) age does not affect satisfaction. A recent report by GEM (Schott, Rogoff, Herrington, & Kew, 2017) compares the satisfaction with life, job and balance obtained by older individuals engaged in different type of occupations, ranging from entrepreneurship to wage and salary ones. The report shows that early-stage or established entrepreneurs between fifty and eighty report higher levels of satisfaction with life and job compared to wage and salary employees. Additionally, Cooper and Artz (1995) do not find support for their hypotheses that SEs have lower expectations regarding business success.

It is worth to notice that except for Cooper and Artz (1995), most of these articles are exploratory and not theory-driven. As discussed in the introductory section of the present study, there is an ongoing theoretical and empirical debate in the literature about the monetary and non-monetary outcomes expected and generated by entrepreneurs. Cooper and Artz (1995) focus on business satisfaction by means of the "goal-achievement gap" and "expectation-reality gap" theories. Block and Koellinger (2009) argue that nascent entrepreneurs seem to be more satisfied with the business the higher their achievement in terms of independency and creativity, emphasizing the importance of procedural utility – for these entrepreneurs "the 'way' seems to be the "goal"" (p. 194). Nevertheless, monetary gains revealed to be the most important in explaining business satisfaction. Cooper and Artz (1995) find a positive relationship between entrepreneurs' initial high expectations and satisfaction; moreover, the authors conclude that satisfaction is higher for individuals with noneconomic (rather than economic) goals.

The overall idea SEs value non-monetary aspects (such as, for example, self-realization (Kerr, 2017; Logan, 2012; Say & Patrickson, 2012), improve work-life balance (Kerr, 2017; Walker & Webster, 2007)) vis-à-vis monetary have been gaining relevance in the literature on senior entrepreneurship that analyzed motivations to startup. Kautonen et al. (2017) use and adapt occupational choice models, to investigate SEs' outcomes namely wellbeing, operationalized through entrepreneurs' overall quality of life. Kautonen et al. (2017) claim non-monetary utility (Douglas and Shepherd, 2000, 2002) and career stage (Lévesque & Minniti, 2006; Parker, 2009) should be simultaneously considered when looking at senior entrepreneurs' outcomes.

A theoretical perspective that has been used to explain how individuals change their goals with age is Socioemotional Selectivity (Carstensen, 2006; Carstensen et al., 1999). Socioemotional selectivity theory poses that due to their particular stage of life, in general, older individuals tend to shift from knowledge acquisition to emotional-oriented goals (Carstensen et al., 1999). Moreover, given that older individuals perceive less time of life and less future opportunities (Carstensen, 2006; Carstensen et al., 1999) they attach a lower value to upcoming benefits, when compared to present ones (Carstensen, 2006; Kautonen et al., 2017; Lévesque & Minniti, 2006). Applied to senior entrepreneurship, this might mean that SEs are expected to have a higher focus on non-financial/ growth-oriented goals.

In addition, the concept of procedural utility also seems to be an appropriate steppingstone to analyze business satisfaction of senior entrepreneurs. Procedural utility is defined as "the well-being people gain from living and acting under institutionalized processes as they contribute to a positive sense of self, addressing innate needs of autonomy, relatedness, and competence" (Frey et al., 2004). Therefore, the concept of procedural utility supports the idea that entrepreneurship can be viewed as a mechanism connected with ageing well and, therefore, with a set of activities, processes and outcomes (not necessarily monetary or based on quantitative metrics) that are relevant for older individuals. Procedural utility refers to monetary and non-monetary outcomes obtained in the present, through the process (in opposition to exclusively future outcomes). This approach is appropriate to study senior entrepreneurship outcomes and is complementary to the socioemotional selectivity theory.

Building on the previous discussion, we formulate the following hypothesis:

Hypothesis 1. *Senior entrepreneurs derive satisfaction from both monetary and non-monetary entrepreneurship-related outcomes.*

An important argument that has been discussed in the literature is the fact older individuals' longer life spans and careers allow for the accumulation of different types of resources – particularly human capital (Agarwal, Echambadi, Franco, & Sarkar, 2004) – which can be important to engage into entrepreneurship (Amaral et al., 2011; Davidsson & Honig, 2003) and foster business performance (Baptista, Karaöz, & Mendonça, 2014;

Bates, 1990; Gimeno et al., 1997; Parker, 2009; Unger et al., 2011).

With regard of subjective performance of the business, only two studies – Carree and Verheul (2012) and Block and Koellinger (2009) – examine the influence of industry experience on business satisfaction; notwithstanding, no particular focus is given to age. First, Carree and Verheul (2012) find that job similarity significantly increases satisfaction with income. Second, for Block and Koellinger (2009), experience in a specific industry also has a positive influence on satisfaction. However, to the best of our knowledge, no study so far focuses on how SEs' industry experience impact subjective performance, as measured through business satisfaction (instead of firm level variables, such as turnover and employment generation). We find continuity theory to be particularly suited to address this gap in the literature. Continuity theory developed by Atchley (1989) within the scope of activity theory (DeLiema and Bengtson, 2017)[64], suggests that older individuals able to keep the same lifestyle are more satisfied with their lives and that individuals deal with changes occurring in their lives by being coherent and consistent with their past, their prior history (Atchley, 1989). This theory poses that "in making adaptive choices, middle-aged and older adults attempt to preserve and maintain existing internal and external structures and that they prefer to accomplish this objective by using continuity" (ibid.). More specifically, Atchley (1989) suggests older individuals may keep developing similar tasks within already known environments because they value the possibility of remaining in a "comforting routine" and having "a familiar sense of direction" (ibid.). Applied to senior entrepreneurship, continuity theory offers a useful framework for understanding senior entrepreneurship outcomes. Continuity in similar routines or experiences allows individuals for "exercising mastery and the value of experience and practice in preventing and minimizing the deleterious effects of physical and psychological aging (ibid.)", which may also associate with higher self-efficacy[65] and, therefore higher satisfaction (Bradley & Roberts, 2004[66]). Furthermore, continuity also allow to maintain their contacts' network (social capital) in that industry and possess

[64] According with activity theory, older individuals tend to continue the roles and activities they have developed during their lives and, the more active individuals are, the higher their satisfaction with life.

[65] Self-efficacy refers to the individual's belief of his or her capacity of performing an activity (Bandura, 1997).

[66] According with Bradley and Roberts (2004), individuals reporting higher levels of self-efficacy are, in general, more satisfied with their jobs.

greater knowledge about that specific market. These factors are important to foster SEs' sense of usefulness, confidence and, consequently, their overall satisfaction. In fact, Say and Patrickson (2012) argue that industry experience and market knowledge allow entrepreneurs to identify unexploited or new opportunities. A recent study by Hennekam (2015) concludes that 65% entrepreneurs perceive themselves as successful by focusing on professional networks built up during their careers on a specific industry.

This line of reasoning leads to the following hypothesis:

Hypothesis 2. *Senior entrepreneurs with experience in the same industry (vis-à-vis without), derive higher business satisfaction.*

If human capital and different types of experience are deemed important for firm creation and development, it is also central to discuss the fact that, as time elapses, human capital may depreciate (Neuman & Weiss, 1995; Parker, 2013). For example, Parker (2013) discusses how research in labor economics has found that interrupted careers translate into depreciation of human capital stocks and how it might apply specifically to entrepreneurs, causing a negative impact on business creation or performance. While knowledge and skills acquired in one venture are valuable assets, they may gradually become less applicable as circumstances change (Argote, Beckman, & Epple, 1990; Parker, 2013; Rerup, 2005). One type of interruption that has been found to be important for entrepreneurs and firms' performance is the one caused by unemployment spells or time away from paid-employment or business ownership (Baptista et al., 2014).

Except for Block and Koellinger (2009), not much research examines the influence of unemployment on business satisfaction, probably due to the still relatively recent academic interest on the relationship between wellbeing and entrepreneurship (Amoros & Bosma, 2014). Block and Koellinger (2009) find that individuals spending, on average, more than 12 months unemployed before starting the business exhibit a lower satisfaction compared to those who have not experienced unemployment.

In fact, older individuals, when compared to their younger counterparts, tend to spend longer periods in unemployment (OECD, 2011). This stress the importance of analyzing unemployment and its impact on business satisfaction (even if, according with

Kautonen et al. (2017) or Parker (2013) only a small number of SEs start companies out of unemployment).

As this depreciation of human capital is more likely to happen with older individuals (who have lived longer and have potentially accumulated more human capital), we draw again on continuity theory (Atchley, 1989) to account for SEs' human capital persistence — or, conversely, its depreciation — over time and its impact on performance (as measured specifically through business satisfaction). In line with the continuity theory, individuals gain satisfaction at middle and older ages through internal (personal experiences, skills) and external (social pressure, sense of belonging) types of continuity (Atchley, 1989). Unemployment may negatively influence internal and external types of continuity. First, on an internal perspective, as it was previously mentioned, spells of unemployment and/or time spent away from the labor market may lead to a depreciation of individuals' human capital (Neuman & Weiss, 1995; Parker, 2013) and cause a loss of accumulated knowledge. Moreover, unemployment may also lead to a state of poor mental health (Bradley & Roberts, 2004; Frasquilho et al., 2015). Second, from an external perspective, unemployment may cause individuals to stop interacting with their familiar professional actors and networks. Therefore, we expect that individuals' spells in unemployment before engaging into a business are associated with lower business satisfaction, which leads to the following hypothesis:

Hypothesis 3. *Senior entrepreneurs who have been unemployed (vis-à-vis employed) before starting their current business derive lower business satisfaction.*

4.3. Data and methods

4.3.1. Sample and data collection

We develop our empirical analysis using data from a unique questionnaire – specifically designed and implemented for the present study – which was sent, in 2015 (between January and April), to all private incorporated firms that were founded between 2004 and 2009 in Portugal with at least one business owner/founder aged 50 or over and with at least one paid-employee. The questionnaire included both open and closed questions in order to combine flexibility with comparability. Questions were organized into two major dimensions: individual (demographics, human capital,

motivations and satisfaction) and firm-level variables (firm characteristics and performance). In order to guarantee face validity, a pilot test was performed beforehand among a number of selected senior entrepreneurs, university professors and entrepreneurship academics, to ensure that both the structure and questions were suitable and unambiguous. Firms' contacts originated from official longitudinal micro-data, which was made available by the Office for Strategy and Studies (Gabinete de Estudos e Estratégia – GEE) at the Portuguese Ministry of Economy.

The questionnaire was sent through post mail and e-mail (according with the type of address available for each company) and followed up by phone (whenever the contact was available). Throughout the data gathering and cleansing process one had to deal with the fact that around half of the official postal and e-mail addresses were not correct and in 199 questionnaires the original founders were not part of the company anymore. In the end, we were left with a reachable population of 1.671 senior entrepreneurs, out of which we obtained 181 valid questionnaires, accounting for a response rate of 10.83%. This group comprises both individuals who are starting a firm for the first time in their lives (novice entrepreneurs) and individuals who have had other entrepreneurial experiences before (serial entrepreneurs) or who may even still be running other companies in parallel (portfolio entrepreneurs).

4.3.2. Measures[67]

Business satisfaction. We use a single-item to measure the degree of business satisfaction through the following question: "Overall, how do you rate your current satisfaction with the business?". Categories range from 1 (very dissatisfied) to 5 (very satisfied); the higher the value, the higher the satisfaction level. A similar approach is developed by Block and Koellinger (2009) and by other studies focusing on job satisfaction in general (i.e., Benz & Frey, 2008). According to Shir (2016), business satisfaction is one of the components of entrepreneurial well-being[68].

[67] A more detailed description of all variables and respective questions addressed to entrepreneurs can be found in Appendix I.

[68] "A positive and distinctive mental state, which reflects entrepreneurs' affective and cognitive experiences of engagement in entrepreneurship as the process of venture creation. These experiences are characterized by positive judgments of the entrepreneurial life and good feelings about it" (p. 76).

Human capital. In order to assess senior entrepreneurs' human capital, individuals were questioned about their educational level and experience in paid-employment – *general human capital – and* also about their entrepreneurship, management and industry experience –*specific* human capital (in line with Bosma et al. (2004) and Parker (2009)). In our sample around 32% entrepreneurs possess higher education and 24% have completed only the first cycle of education. Complementary to formal education, 77% of respondents hold previous experience in managerial and/or board positions. SEs were involved in management activities for an average period of 21 years (descriptive statistics show, however, high variation, with a standard deviation of 50%). Around 49% individuals, report they have previously started up a company (serial entrepreneurs) during their professional career. SEs have also built up a strong track record of prior professional experiences, especially within the same industry of their actual firm – while around two thirds of SEs report previous work experience in their current company's industry (67%), one third had never worked in the same field.

Monetary and non-monetary outcomes. Given that the present research draws on the procedural utility concept (Benz & Frey, 2008 and Frey et al., 2004), business satisfaction is affected by both monetary and non-monetary outcomes extracted from the business. Thus, in order to measure these two dimensions, we disentangle different outcomes according with Block and Koellinger (2009) approach. As previously mentioned, a 5 point-Likert scale is adopted. We create two indices by averaging the respective item scores. The monetary outcomes index contains three items[69] to account for items related to individuals' income. The non-monetary index includes five items[70]. In our non-monetary index, we include variables accounting for the level of creativity, independence, safety, and working flexibility achieved (in line with the approach adopted by Block & Koellinger, 2009). A variable addressing individuals' perception about the level of social recognition they gauge with entrepreneurship was also included. Although social recognition and its relationship with satisfaction is not

[69] "I have achieved a high level of income", "How would you rate the income obtained from your company vis-à-vis your living costs?" and "In relation to your previous job, your current income is:"

[70] "I have achieved a high level of creativity", "I have achieved a high level of independence", "I have achieved a high level of flexibility in working hours", "I have achieved a high level of safety/comfort", "I have achieved a high social recognition".

addressed by Block and Koellinger (2009) or any other study, we considered this is an important outcome for entrepreneurs in general (Fauchart & Gruber, 2011; Parker & Van Praag, 2010) and, probably more relevant, for SEs, who aim to feel useful and contribute to society (Kruse & Schmitt, 2012). Moreover, social recognition connects with global judgments of satisfaction with individuals' life as entrepreneurs, which is an important component of the business satisfaction construct (Shir, 2015). Table 2 shows that only 14% of respondents partially or totally agree that their income was high and around 60%[71] of SEs completely or somewhat disagree that firm start-up/acquisition resulted in high earnings. Around 37% of SEs refer to the earnings obtained as either insufficient or very insufficient in terms of meeting their costs of living (with 50% declaring sufficient earnings, 11% good and less than 1% very good). Regardless of these motivations and results on financial outcomes, there is an overall reasonable level of business satisfaction (an average of 3.6 on a scale of 5), which indicates that satisfaction may relate with other (non-pecuniary) factors[72]. With regard of the entrepreneurship-related outcomes, participants' claim to have achieved, a high level of creativity (48%) and independence (45%). Only 28% state they have achieved a high level of safety.

The internal consistency of *monetary* and *non-monetary outcomes* constructs are tested with the Cronbach's alpha. While for the particular case of the monetary index, Cronbach's alpha is 0.7215, the value for the non-monetary index is 0.7365. Results (expressed as a number between 0 and 1) are above the recommended threshold of 0.7 (Nunnally, 1978). Hence, we are convinced that the two indexes under analysis measure the same concept exhibiting internal consistency and assessing the domain of interest.

[71] A 5 point-Likert scale was used (as explained in Table 2 notes). Hereafter, within the present section, our description of key outcomes aggregates levels (4) and (5) as compared with the remaining levels for each variable.

[72] Additional qualitative information obtained through open questions reveal that for entrepreneurs reporting dissatisfaction, bureaucratic difficulties and market conditions hold particular relevance (e.g. fiscal pressures; lack of transparency in the attribution of subsidies, excess of bureaucracy and the lack of state support, economic recession, were some of the comments by respondents). This is in line with Amoros and Bosma (2014) who, drawing on international data from the Global Entrepreneurship Monitor, report the lack of government policies supporting entrepreneurship (taxes and bureaucracy) and low market dynamics as the key variables explaining individuals' low willingness to engage into entrepreneurship. Although this qualitative information is not directly used in our empirical analysis, it provides us with a better understanding of SEs' perception of the satisfaction (and dissatisfaction) construct.

Control variables. In order to account for the fact business satisfaction may depend on other individual and firm level specific variables we control for gender and wealth (individual specific controls), and for initial investment and firm profits (firm specific controls). Gender is operationalized as a dummy variable with the value one (1) assigned to male respondents and zero otherwise. We control for gender due to the fact that Cooper and Artz (1995) found that female entrepreneurs have, ceteris paribus, a higher business satisfaction compared to male. On the other hand, Carree and Verheul (2012) found that, compared to male, female to be more satisfied with their income but exhibit a lower satisfaction regarding the psychological burden of the business and the leisure time achieved. Similar to Block and Koellinger (2009), we controlled for the state of wealth of the individual, we asked individuals: "If you were to stop having any income, for how long would you be able to live on your savings alone?".

We use initial investment to control for size differences across firms in our sample. Initial investment is a categorical variable with four intervals assuming values (1) < 5.000€; (2) 5.000€ to 10.000€; (3) 10.001€ to 25.000€ or (4) > 25.000€ in the last year. This control variable might be important to account for the size of investment the individual put in the business. Also allows to control for size differences within the firms.

Firm performance is measured through a categorical variable accounting for whether the firm reached: (1) profits, (2) losses or (3) neither profits nor losses in the last year. Carree and Verheul (2012) show that performance of the firm has a significant effect on satisfaction with the business, being it positive for satisfaction with income and negative for satisfaction with psychological burden and leisure time.

Table 4-1 Descriptive statistics

	Mean	Std. Dev.	Min	Max
Overall Business satisfaction	3.82	1.01	1	5
Monetary Outcomes (index)	2.48	0.83	1	4.7
Non-monetary Outcomes (index)	3.11	0.86	1	5
Absolute Income	2.27	1.09	1	5
Relative Income (Cost of Living)	2.65	0.85	1	5
Current vis-à-vis Previous Income	2.51	1.14	1	5
Creativity	3.21	1.22	1	5
Independence	3.15	1.30	1	5
Working Flexibility	3.36	1.34	1	5
Safety/Comfort	2.75	1.19	1	5
Social Recognition	3.08	1.14	1	5
Gender	0.81	0.39	0	1
Education	5.21	2.34	1	10
Industry Experience	0.67	0.47	0	1
Management Experience	0.77	0.43	0	1
Entrepreneurial Experience	0.49	0.50	0	1
Unemployment (1-6 months)	0.10	0.30	0	1
Unemployment (7-12 months)	0.05	0.22	0	1
Unemployment (>12 months)	0.08	0.27	0	1
Initial investment	2.71	1.09	1	4
Savings	2.40	1.39	1	5

Notes: *N*=145 for all variables except Creativity (*N*=144), Independence (*N*=142) and Working Flexibility (*N*=143).

Table 4-2 Monetary and non-monetary outcomes

		(1)	(2)	(3)	(4)	(5)	*N* Total	Mean	Std. Dev.
Monetary outcomes									
Income [(a)]	*N*	46	38	39	20	2	145	2.27	1.09
	%	31.72	26.21	26.9	13.79	1.38			
Relative Income (Cost of Living) [(b)]	*N*	16	38	73	17	1	145	2.65	0.85
	%	11.03	26.21	50.34	11.72	0.69			
Current vis-a-vis Previous Income [(c)]	*N*	32	39	53	10	11	145	2.51	1.14
	%	22.07	26.9	36.55	6.9	7.59			
Non-Monetary outcomes									
Creativity [(a)]	*N*	19	20	35	52	18	144	*3.21*	1.22
	%	13.19	13.89	24.31	36.11	12.5			
Independence [(a)]	*N*	22	21	34	43	22	142	3.15	1.30
	%	15.49	14.79	23.94	30.28	15.49			
Working Flexibility [(a)]	*N*	21	16	29	45	32	143	3.36	1.34
	%	14.69	11.19	20.28	31.47	22.38			
Safety/Comfort [(a)]	*N*	29	28	47	32	9	145	2.75	1.19
	%	20	19.31	32.41	22.07	6.21			
Social Recognition [(a)]	*N*	19	21	46	48	11	145	3.08	1.14
	%	13.1	14.48	31.72	33.1	7.59			

Notes:

(a) "With the establishment of your company you have achieved high…" – Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)

(b) "How would you rate the income obtained from your company vis-à-vis your living costs?" – Very insufficient (1) Insufficient (2), Sufficient (3), Good (4), Very good (5)

(c) "Relatively to your previous job, your current income is" – Over 50% less (1), Up to 50% less (2), Similar (3), Up to 50% more (4), Over 50% more (5)

Table 4-3 shows the correlation matrix. The relationship between relative income (cost of living) (r=.47, p<.1), current vis-à-vis previous income (r=.33, p<.1), creativity (r=.41, p<.1), independence (r=.48, p<.1), working flexibility (r=.24, p<.1), safety/comfort (r=.34, p<.1), social recognition (r=.34, p<.1) and overall business satisfaction was positive and significant. Among human capital traits, business satisfaction was also positively related to education (r=.20, p<.1), and management experience (r=.18, p<.1). Having been unemployed less than 6 months or more than 12 months are also positively and negatively correlated with business satisfaction, respectively. The control variables savings and business performance are both positively and significantly correlated with business satisfaction (r=.07 p<.1).

Table 4-3 Correlation matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	Overall Business Satisfaction	1,00																					
2	Monetary Outcomes (index)	0,49*	1,00																				
3	Non-monetary Outcomes (index)	0,50*	0,57*	1,00																			
4	Income achieved	0,40*	0,82*	0,62*	1,00																		
5	Relative Income (Cost of Living)	0,47*	0,80*	0,50*	0,57*	1,00																	
6	Current vis-à-vis Previous Income	0,33*	0,79*	0,25*	0,41*	0,45*	1,00																
7	Creativity achieved	0,41*	0,53*	0,71*	0,53*	0,42*	0,33*	1,00															
8	Independence achieved	0,48*	0,50*	0,81*	0,55*	0,44*	0,21*	0,51*	1,00														
9	Working Flexibility achieved	0,24*	0,17*	0,69*	0,27*	0,13*	-0,01	0,28*	0,55*	1,00													
10	Safety/Comfort achieved	0,34*	0,45*	0,70*	0,46*	0,41*	0,21*	0,30*	0,40*	0,41*	1,00												
11	Social Recognition achieved	0,34*	0,42*	0,67*	0,42*	0,40*	0,19*	0,46*	0,41*	0,17*	0,39*	1,00											
12	Gender	0,09	0,08	0,06	0,06	0,14*	0,01	0,04	0,05	0,05	0,07	-0,01	1,00										
13	Education	0,20*	0,14*	0,21*	0,25*	0,12	-0,03	0,20*	0,30*	0,16*	0,02	0,08	-0,08	1,00									
14	Industry Experience	0,12	0,14*	0,04	0,06	0,19*	0,11	0,00	0,08	0,02	0,07	0,00	0,13*	-0,07	1,00								
15	Management Experience	0,18*	0,18*	0,19*	0,21*	0,12	0,09	0,28*	0,14*	0,09	0,04	0,11	0,22*	0,28*	0,05	1,00							
16	Entrepreneurial Experience	0,10	0,11	0,08	0,13*	0,13*	0,00	0,12	0,09	-0,02	0,08	0,04	0,14*	0,08	0,15*	0,38*	1,00						
17	Unemployment (1-6 months)	0,13*	0,00	0,07	0,01	0,02	-0,03	0,02	0,05	0,08	0,05	0,05	-0,11	0,07	0,05	-0,09	-0,10	1,00					
18	Unemployment (7-12 months)	0,05	-0,12	0,09	-0,09	-0,03	-0,15*	-0,06	0,10	0,10	0,12*	0,09	-0,09	0,10	0,05	0,02	-0,02	-0,07	1,00				
19	Unemployment (>12 months)	-0,23*	-0,07	-0,06	-0,09	-0,08	0,02	-0,02	0,00	0,00	-0,14*	-0,05	-0,15*	0,02	-0,08	-0,08	-0,18*	-0,09	-0,06	1,00			
20	Initial investment	0,00	-0,10	-0,04	-0,08	-0,12*	-0,09	0,01	0,01	-0,02	-0,11	-0,06	-0,08	0,10	-0,22*	0,12	0,16*	-0,04	0,13*	0,01	1,00		
21	Savings	0,30*	0,20*	0,12	0,24*	0,17*	0,10	0,19*	0,11	0,04	0,06	0,03	0,01	0,37*	-0,14*	0,13*	0,07	0,04	-0,10	-0,08	0,13*	1,00	
22	Business Net Income	0,46*	0,51*	0,26*	0,41*	0,46*	0,37*	0,27*	0,27*	0,06	0,18*	0,13	0,11	-0,01	0,10	0,08	0,05	0,14*	-0,14*	-0,06	-0,17*	0,17*	1,00

4.3.3. Analytical technique

In order to empirically test the stated hypotheses and examine the influence of the various control variables on Business Satisfaction, we specify an ordered logit regression. This econometric approach is suited to the type of dependent variable we are dealing with (Block & Koellinger, 2009; Hamilton, 2003) – Business Satisfaction is measured through a categorical variable with 5 levels ordered from 1-Very dissatisfied to 5-Very satisfied. Then, we estimated marginal effects of covariates upon the dependent variable. The marginal effects for categorical variables shows how P(Y=1) changes as the categorical variable changes from 0 to 1, after controlling for the other variables in the model. With a dichotomous independent variable, the marginal effect is the difference in the adjusted predictions for the two groups. Given the type of covariates used in our models, we opted for using marginal effects at variables' representative values than variables at their mean values.

In order to test the effect of independent variables on business satisfaction (Table 4-4). We developed two differently specified ordered logistic regressions in which the dependent variable (Business Satisfaction) and the independent and control variables described in Section 4.3.2 were included. All models were statistically significant and yielded pseudo-R2 values around 0.26. The difference between Models I and II is that constituents of satisfaction are firstly analyzed in a disaggregated in Model I way and then aggregated into two indexes in Model II. Models III and IV report marginal effects for all variables analyzed bases on estimations performed in Models I and II. As discussed before, in the present analysis, the variable Satisfaction has five categories: (1) Very dissatisfied, (2) Dissatisfied, (3) Neither satisfied nor dissatisfied, (4) Satisfied, (5) Very satisfied. Models report marginal effects for all variables and we opt for focusing on predictions from the model which are set to a fixed outcome, namely: #5 Very satisfied.

Results from our ordered logit regressions with marginal effects show that the probability individuals are Very satisfied with entrepreneurship (Outcome #5) is 24% ($p<0.001$), given that the rest of the variables are at their current values. The figures for the remaining outcomes show a probability of around 50% ($p<0.001$) for "Satisfied" (#4); 16% ($p<0.001$) for "Neither satisfied nor dissatisfied" (#3); 5% ($p<0.001$) for "Dissatisfied" (#2) and 4% ($p<0.001$) for "Very dissatisfied (#1)". It is interesting to note

that, *ceteris paribus*, the majority of SEs in our sample seem to experience a high or very high level of satisfaction (74%).

4.4. Results

Hypothesis 1 predicts that SEs derive satisfaction from both monetary and non-monetary entrepreneurship-related outcomes. Model I (in Table 4-4) shows that monetary-related outcomes (Hypothesis 1) have no statistical significance, whereas non-monetary outcomes such as Creativity ($p<0.05$) and Independence ($p<0.05$) have a marginal contribution of around 3.9 and 4.3 pp, respectively, to overall business satisfaction. The second column (Model II) of Table 4 aggregates several explanatory variables into two indices (as described in the Section 4.3.2). Results show that both Monetary and Non-monetary Outcomes indexes (with Cronbach's alpha > 0.7) are positive and significant proxies ($\beta=0.668$, $p<0.05$ and $\beta=0.885$, $p<0.01$, respectively) to analyze senior entrepreneurs' satisfaction with their business. The average marginal effect of the Monetary and Non-monetary Outcomes indexes is of 8 percentage points and 11 percentage points (pp) respectively (Model IV). That is, everything else equal, we would expect a 11 pp increase in the proportion of SEs who have a high overall business satisfaction through non-monetary outcomes, as compared with entrepreneurs who value more Monetary outcomes. The same reasoning applies to the Monetary index ($r=8.3$pp, $p<0.05$). Therefore, we bring additional evidence to Model 1 and confirm our Hypothesis 1. In Model I, the variables that belong to the Monetary index lose their power individually, also probably due to the importance of the control variables "Savings" and "Business Performance".

To test the effect of "continuity" (or the lack of it) on business satisfaction among senior entrepreneurs, we estimated the effect of industry and time on unemployment before firm creation/ acquisition (respectively, continuity and discontinuity). Our findings show that Industry Experience ($p<0.05$) has a positive marginal effect of around 10pp on overall satisfaction, which supports our Hypothesis 2. Secondly, Model II shows that while having spent up to 12 months unemployed before engaging into a business at 50 years or over as a positive (but not significant) marginal contribution to satisfaction, a spell of more than 12 months unemployed before becoming a SE

decreases around 22pp the level of the satisfaction of the SE ($p<0.001$) (Model IV). In fact, short periods in unemployment may be part of individuals planning and readjustment before starting/acquiring a business and may constitute an important basis for a more sustainable business. Thus, even though in Model II unemployment decreases around 22pp the level of the satisfaction of the SEs ($p<0.001$), hypothesis 3 is only partially supported because when occurring for shorter periods (<12 months), unemployment is non-significant.

Table 4-4 - Business Satisfaction (Overall how do you rate your current satisfaction with the business?) Coefficients and Marginal effects specifications after Ordered Logit regressions.

Variables	**Model I**	**Model II**	**Model III**	**Model IV**
Monetary and Non-monetary Outcomes:				
Monetary Outcomes (index)		.6683654**		.0834033**
		[.3063283]		[.0369939]
Non-monetary Outcomes (index)		.8849988***		.1104363***
		[.2392243]		[.0282082]
Income	-.0402116		-.0048797	
	[.2819105]		[.0343581]	
Relative Income (Cost of Living)	.21317		.0258681	
	[.2841947]		[.0344139]	
Current vis-à-vis Previous Income	.300976		.0365234	
	[.1874936]		[.0226538]	
Creativity	.3914943**		.0475077**	
	[.1691689]		[.0192292]	
Independence	.4341451**		.0526834**	
	[.2142843]		[.0266172]	
Working Flexibility	-.0069253		-.0008404	
	[.1644663]		[.0199556]	
Safety/Comfort	.0272077		.0033016	
	[.1762486]		[.0213374]	
Social Recognition	.1444289		.0175264	
	[.1894192]		[.0232116]	
Entrepreneur Human Capital:				
Education	.0297325	.0462152	.003608	.0057671
	[.0893656]	[.0823805]	[.0107668]	[.0100879]
Industry Experience	.9463074**	.8893582**	.1148342**	.1109803**
	[.4195614]	[.3840363]	[.0500465]	[.0462028]
Management Experience	-.1654284	-.0922624	-.0200747	-.0115131
	[.4598651]	[.4478685]	[.0560533]	[.0560676]
Entrepreneurial Experience	-.1057121	-.2148249	-.0128281	-.0268073
	[.4156124]	[.4103721]	[.0499879]	[.0504303]
Unemployment (1-6 months)	.9022163	.6851168	.1094837	.0854936
	[.643777]	[.6266614]	[.0782381]	[.0788835]
Unemployment (7-12 months)	.364459	.2110607	.044227	.0263376
	[1.570686]	[1.619018]	[.1918462]	[.2028574]
Unemployment (>12 months)	-1.86371***	-1.725429***	-.2261608***	-.215311***
	[.4637466]	[.4147512]	[.0554767]	[.0503039]
Individual Traits:				
Gender	.1330277	.2300793	.0161429	.0287109
	[.5138907]	[.5046037]	[.0620142]	[.0623049]
Savings	.2582962*	.2413577*	.0313442*	.0301183*
	[.1402555]	[.1285236]	[.0173683]	[.0158617]

(Continued)

Firm Characteristics				
Business Net Income	.9899393***	1.0065***	.1201289***	.1255981***
	[.3029992]	[.2910946]	[.0372285]	[.0355037]
Initial investment	.3647712**	.3999762**	.0442649**	.0499118**
	[.1602824]	[.159026]	[.0198354]	[.020372]
Constant cut1	4.219***	4.565***		
	[1.280]	[1.174]		
Constant cut2	5.402***	5.712***		
	[1.324]	[1.206]		
Constant cut3	7.274***	7.537***		
	[1.421]	[1.287]		
Constant cut4	11.038***	11.203***		
	[1.645]	[1.560]		
Observations	140	144		
Pseudo Rr^2	0.277	0.260		

Notes: * p<0.1; ** p<0.05; *** p<0.01. Standard errors with Huber-White standard errors are presented in brackets. Results in Models I and II indicate variables' marginal effects (Average Adjusted Predictions) after ordinal logit regression. For continuous variables, the marginal effects are approximated with the variable magnitudes held at their mean value. For dichotomous variables the marginal effects are approximated as the change in the probability resulting after the variables' value changes from 0 to 1. On an all other things being equal basis, for each independent/control variable, coefficients represent, the percentage of senior entrepreneurs who are very satisfied with the business, as compared with those who are less satisfied. Average Adjusted Predictions for each group sum to 1, i.e. all the subjects fall into one of the five Satisfaction categories. Business Satisfaction: variables Total Income; Creativity; Independence; Working Flexibility; Safety/Comfort; Social Recognition use the same 5-point Likert scale: 1- Disagree completely; 2- Disagree somewhat; 3-Neither agree nor disagree; 4-Agree somewhat; 5-Agree completely. Relative Income (Cost of Living) uses the following 5-point Likert scale: Very insufficient=1, Insufficient=2, Sufficient=3, Good=4, Very good=5. Current vis-à-vis Previous Income uses the following 5-point Likert scale: (-100% to -50%)=1, (0 to -50%)=2, (Similar)=3, (0% to 50%)=4, (<50%)=5. Individual Traits: Founder's Gender (1=male, 0=female). Monetary Outcomes Index = Average (Total Income + Relative Income (Cost of Living) + Current vis-à-vis Previous Income). Non-monetary Outcomes Index= Average (Creativity + Independence + Working Flexibility + Safety/Comfort + Social Recognition). Entrepreneur Human Capital: Management Experience (Yes=1, No=0); Industry Experience (Yes=1, No=0); Education (None=1, Primary, 1st cycle=2, Basic, 2nd cycle=3, Basic, 3rd cycle=4, High school=5, Post-high school course work=6, Bachelor, 3 years =7, Undergraduate, 4 years=8, Masters=9, Doctorate=10); Entrepreneurial Experience (Yes=1, No=0); Opportunity-driven Entrepreneurship (Yes=1, No=0); Opportunity-driven Entrepreneurship (Yes=1, No=0); Opportunity & Necessity-driven Entrepreneurship (Yes=1, No=0) is the omitted category; Spells in Unemployment (number of months) with Short Run (1-6), Medium Run (7-12) and Long Run (>12); Savings (Less than 1 year=1, 1 year=2, Between 1 and 5 years=3, Between 6 and 10 years=4, More than 10 years=5); (Firm's Net Income (Losses=1, Neither profits nor losses=2, Profits=3).

4.5. Discussion

This article provides a comprehensive investigation to business satisfaction among senior entrepreneurs. More specifically, we explore the role of monetary outcomes of entrepreneurship and non-monetary on business satisfaction, and also the effect of work history of the individual. We propose and empirically test an alternative and complementary approach to standard occupational choice models based on expected

utility theories of firm performance and also to traditional conceptualizations of firm performance as income, sales, or size growth. Our results show that SEs are, in general, satisfied with their firm. The majority of SEs in our sample (74%) seem to experience a good or very good level of satisfaction. Although the impact of age on satisfaction is not the focus of the present study, it is worth to mention that we find evidence that within the SEs' group (50-80 years old) age associates negatively with higher levels of satisfaction, which supports findings from Block and Koellinger (2009).

Our empirical analysis supports the prediction that SEs derive satisfaction from both monetary and non-monetary outcomes. Although Block and Koellinger (2009) concluded that monetary aspects do exhibit higher importance compared to non-monetary ones, our finding illustrates that both monetary and non-monetary outcomes seem to be relevant to reach a high business satisfaction. We also find that achieving a high level of creativity and independence is positively related to business satisfaction. This finding is aligned with Alstete (2008) who stress the role played by the entrepreneurs' level of independence and freedom of being their own boss on satisfaction.

Furthermore, as predicted in conceptual framework, we found SEs' experience in the same industry to associate with higher overall satisfaction (in line with Alstete, 2008). Results indicate that individuals gauge higher satisfaction by continuing working in the same sector, but with higher independence, in their own business rather than in paid-employment. Finally, our empirical analysis reveals that longer spells (more than 12 months) in unemployment before starting the firm, decrease business satisfaction. This finding supports the assertion that the way the entrepreneur starts the firm influences his/her satisfaction (aligned with Block & Koellinger, 2009), with visible scarring effects throughout the business life cycle and observable in our data that refers to businesses with, at least, five years of activity. The fact shorter periods of unemployment are non-significant in explaining business satisfaction may configure cases where voluntary unemployment or frictional involuntary unemployment (rather than cyclical or structural) are seen as a transition period to plan and readjust to entrepreneurship. On the other hand, being unemployed for a long term has a negative influence on business satisfaction even among those firms that are already active for five years, thus the utility losses associated with unemployment (Frey, 2008) last for a

long time. Our intuition, could lead us to expect that having been unemployed before business startup would lower the expectations of the individual and, thus, more easily enable him/her achieving a better business satisfaction. Nevertheless, the research by Cooper and Artz (1995) concludes for the opposite - the higher the expectations the individual has towards the business, the higher the satisfaction achieved.

4.5.1. Theoretical and Practical implications

Firstly, we draw on the socioemotional selectivity theory (Carstensen, 2006; Carstensen et al., 1999) and the concept of procedural utility (Benz & Frey, 2008; Frey et al., 2004) to show that both monetary and non-monetary outcomes index contribute to explain overall satisfaction. We contribute to the theoretical discussion of procedural utility concept (Benz & Frey, 2008) in the scholarly domain of entrepreneurship. Previous entrepreneurship research suggests that procedural utility's concept might be useful to examine business satisfaction (Block & Koellinger, 2009). The concept of procedural utility proposes that the benefits extracted during the entrepreneurial process are important and encompass monetary and non-monetary aspects associated with developing a firm (Benz & Frey, 2008; Frey et al., 2004), this is an extension of the traditional concept of utility maximization that traditionally focuses only on the monetary outcomes of an activity. However, with exception of Kautonen et al. (2017), none analysis on subjective assessment of performance have been undertaken to the segment of older individuals, who probably value the most present benefits.

Secondly, we found that a theory from gerontology (continuity theory) can accurately predict how work history influence satisfaction with the business. We consider that the way we conceptualize and operationalize the present analysis may contribute for future research on the micro-foundations of senior entrepreneurial action (Shepherd, 2015). Our finding that continuity (or discontinuity) plays an intermediate role between age and business satisfaction contributes to unfold partially what has been suggested by Kautonen et al. (2017) for future research on senior entrepreneurship - "It would be desirable if future studies of late-career entrepreneurship could also include factors such as the characteristics of the individuals' jobs before the switch, or the industry in which the subjects started their firms and the type of firm activity they engaged in". We found relatively strong effect sizes indicating the importance of work

history on business satisfaction. These results are somehow stressed in previous literature – having experience in job similarity (Carree & Verheul, 2012) has a positive influence on satisfaction with the income and having been unemployed for longer than 12 months negatively impacts satisfaction with income obtained through the business (Block & Koellinger, 2009). Furthermore, critical life events, such as unemployment, negatively affects happiness, and thus, it also seems to negatively affect business satisfaction. It is important to analyze business satisfaction as it is stressed by DeTienne et al. (2008) and Gimeno et al. (2010) due to its impact on firm survival. Thus, entrepreneurship theory needs to extend its understanding of subjective performance indicators and also factors behind it.

From a policy perspective – and building on our finding that monetary and non-monetary outcomes are both important – it is important that mechanisms supporting older entrepreneurs account for: (i) the definition of realistic expectations for the business , (ii) awareness regarding the right tangible and intangible resources required for the business without compromising SEs' future life; (iii) entrepreneurial dynamics during early stages of firms' life cycle because older individuals may not have time to recover from their (financial and psychological) losses if the firm fails and individuals face a discontinuity in their occupation; (iv) the need for tailored training programs, mentoring or other type of initiatives that contribute to improve firm performance (our variable controlling for business net income has a positive impact on SEs' satisfaction). Furthermore, practitioners, policy-makers, and entrepreneurs should know that having previous experience affects satisfaction positively, whereas long-term unemployment has the opposite effect. Governments as well as entrepreneurs should invest in developing knowledge specific to the firm because knowledge seems to have a long-term effect on business satisfaction. On the other hand, being unemployed for long periods at an older age yields a negative effect on business satisfaction. Therefore, policies promoting engaging in entrepreneurship should be carefully developed regarding long-term unemployed older individuals. Programs might firstly improve long-term unemployed individuals' health and increase self-efficacy, and then, support the start and development of firms by providing knowledge acquisition applied to the firm.

4.5.2. Limitations and implications for future research

We studied the business satisfaction of the owner and founder of the business. Thus, we did not study the wellbeing, which is a broader indicator (Shir, 2015). Furthermore, we focus on older individuals who developed their firms for, at least, five years. Therefore, although focusing on mature businesses brings the possibility and advantage of assessing individuals' entrepreneurial process, according to Amoros and Bosma (2014), entrepreneurs in more mature firms tend to exhibit higher level of "subjective well-being than early-stage entrepreneurs" (p. 64) because the latter are probably dealing with more uncertain conditions and pressures to develop the firm. Consequently, it is important future studies to analyze business satisfaction at different stages of firm cycle, eventually through the use of rich longitudinal matched employer-employee sets of data. Furthermore, future research should also focus not only on satisfaction but also combine it with different types of business assessment and, particularly provide a closer examination to the factors, costs and impacts associated with business failure among SEs (Shepherd, 2015).

Second, although a strength of our study is the fact that we are testing our hypotheses utilizing a unique and specific designed database of 145 new-venture founders or acquirers aged 50 years old or over, covering a wide array of factors related to business satisfaction, we also know that due to our sample size, generalization of our results towards another representative population of SEs should be done cautiously. It would be, therefore, desirable that future studies could be developed based on larger samples. Future research based on larger samples (and, as mentioned before, longitudinal matched employer-employee data) could test if SEs' monetary and non-monetary motivations associate with different business satisfaction and well-being indicators (Shir, 2015).

Third, the analysis focuses on the Portuguese context. As previously discussed, we believe Portugal is an important case study for research on senior entrepreneurship. However, it is noteworthy to mention that the country went through an economic crisis, which started in late 2008/early 2009, and the respondents to our survey engaged in entrepreneurship in 2004-2009 –prior to the economic and financial crisis and recession. While the crisis may severely influence firm performance and individual's business satisfaction and, therefore, constitute a limitation to our analysis, it can also be an

opportunity for further research (i.e., the economic crisis can be studied as used as an exogenous shock to SEs' types and thresholds of performance).

Fourth, findings may be subject to self-reporting biases. Individuals may not objectively recognize either their true satisfaction. Future research should gather qualitative and quantitative data on SEs to mitigate this potential problem.

4.6. Conclusion

Older individuals constitute a segment of the global population that is increasing at a significantly high annual rate, making it the fastest growing population group on the planet. An increasingly elderly workforce, together with longer lives and occupational careers, is requiring careful and increased attention by policymakers and academics. Although a growing body of entrepreneurship research has been focusing on older individuals, senior entrepreneurship is still a recent and significantly unexplored topic in the field. Within the extent research on senior entrepreneurship almost no studies investigate entrepreneurs' outcomes. We attempt to fill this gap by proposing that (complementarily to occupational choice theories) socioemotional selectivity and continuity theories are suited and offer rich conceptual background to explain the factors influencing individuals' satisfaction with the business. Results from our empirical analysis provide evidence that SEs extract satisfaction from both non-monetary outcomes, such as independence, creativity, and from monetary ones. In addition, our study concludes that SEs endowed with specific industry experience (continuity) are likely to gauge higher business satisfaction than those with a different or none experience in the same industry. Additionally, SEs who spend more than 12 months unemployed (discontinuity) before starting/acquiring their firm are likely to experience a decrease in business satisfaction. This evidence opens new research avenues for the topic of senior entrepreneurship and stresses the fact that policies aimed at promoting firm creation/development by older individuals and seeking to stimulate active ageing through senior entrepreneurship should be cautious and take into account individuals' work history.

4.7. Appendix

Table 4-5 Description of variables

VARIABLE	QUESTION/ STATEMENT IN THE QUESTIONNAIRE
Business satisfaction	Overall how do you rate your current satisfaction with the firm? If the firm no longer exists, please refer to the date when it ceased operating. (1= Very dissatisfied, 2= Dissatisfied, 3= Neither satisfied nor dissatisfied, 4= Satisfied, 5= Very satisfied)
Work history	
Experience in management	Did you have managerial / board positions throughout your career? No (0), Yes (1)
Entrepreneurial experience	Had you already created any firm before? No (0), Yes (1)
Industry experience	Have you ever worked at any other firm or firm that produced or provided a similar product to that of your current firm? No (0), Yes (1)
Level of qualifications	What were your educational qualifications at the time that you created or acquired the firm? None (1), Primary education 1st cycle (2), Basic education 2nd cycle (3), Basic education 3rd cycle (4), Highschool (5), Post-high school course work (6), Bachelor (3 years) (7), Undergraduate (4 years) (8), Masters (9), Doctorate (10)
Months unemployed	If you were unemployed immediately prior to creating or acquiring your firm, for how many months did you remain unemployed?

Outcomes	
Level of income	Would you agree that with the establishment of your firm you have achieved a high level of income Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Level of creativity	Would you agree that with the establishment of your firm you have achieved a high level of creativity: Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Level of independence	Would you agree that with the establishment of your firm you have achieved a high level of independence: Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Level of working flexibility	Would you agree that with the establishment of your firm you have achieved a high level of flexibility: Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Level of safety	Would you agree that with the establishment of your firm you have achieved a high level of safety: Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Social recognition	Would you agree that with the establishment of your firm you have achieved a social recognition: Disagree completely (1), Disagree somewhat (2), Neither agree nor disagree (3), Agree somewhat (4), Agree completely (5)
Index Monetary outcomes	Average (Level of income + Current vis-à-vis Previous Income + Relative Income vis-à-vis living costs)
Index Non-monetary outcomes	Average (Level of creativity + Level of independence + Level of flexibility + Level of safety + Level of social recognition
Income vs living costs	How would you rate the income obtained from your firm vis-à-vis your living costs? Very insufficient (1), Insufficient (2), Sufficient (3), Good (4), Very good (5)
Actual vs previous inc	In relation to your previous job, your current income is: Over 50% less (1), Up to 50% less (2), Similar (3), Up to 50% more (4), Over 50% more (5)
CONTROL VARIABLES	
Initial investment	In total how much did you invest to create the company? No answer < 5.000€ (1), 5.000€ to 10.000€ (2), 10.001€ to 25.000€ (3), > 25.000€ (4)
Gender	Feminine (0), Masculine (1)
Savings	If you were to stop having any income, for how long would you be able to live on your savings alone? Less than 1 year (1), 1 year (2), Between 1 and 5 years (3), Between 6 and 10 years (4), More than 10 years (5)
Business Performance	In 2014 the firm obtained: Losses (1), Neither profits nor losses (2), Profits (3)

B. Conclusions

This thesis explores the field of senior entrepreneurship - firm creation and performance is explored by reviewing the literature and based on primary and secondary data. Firm performance is examined twofold, considering subjective and objective dimensions. To operationalize this analysis four studies are developed.

A systematic review of the main literature relevant to this thesis is developed in study no. 1. In this study we present and discuss existing evidence on the topic, theories and methods adopted so far and suggest potential future contributions to the field.

Study no. 2 presents a characterization of the Portuguese senior entrepreneurship context based on primary and secondary data.

Study no. 3 presents an analysis of firm creation and performance by senior entrepreneurs. It traces the impact of human capital on firm creation, differentiating between general (education and paid employee experience) and specific human capital (entrepreneurial and industry experience); and the effect of age on firm performance, measured by sales and employment growth. In addition, it distinguishes the mode of entry (startup vis-à-vis acquisition) and the age cohort of entrepreneurs (younger vis-à-vis senior).

Study no. 4 uses the individual as unit of analysis to examine business satisfaction and, more specifically, the role played by human capital traits of the senior entrepreneur. An ordered logistic regression is developed to analyze the explanatory factors of the dependent variable. A distinction between specific kinds of human capital is introduced and the spells of unemployment are also included in three ranges to account for different spans of unemployment.

B.1. Main findings

The conceptual and empirical analysis developed in this thesis leads to a set of main findings. Study no. 1 shows that senior entrepreneurship research has mainly focused on firm creation. It seems that the SE is male, married, with previous entrepreneurial and management experience, for whom monetary motivations are important but non-monetary ones also drive his/ her entrepreneurial behavior. A lack of research, both

exploratory and theory-based, exists regarding senior entrepreneurs' firm performance and what factors influence it. Nevertheless, a negative relationship between senior entrepreneurs and firm performance is found. Previous research has mainly adopted occupational choice models and theory of planned behavior to analyze firm creation and performance.

In Study no. 2, it is shown that self-employment is a relevant activity for older Portuguese individuals, there is a higher rate of older individuals who are self-employed and entrepreneurs in Portugal compared to other European countries. However, older Portuguese individuals display a lower willingness to start a firm and only some older individuals are indeed starting firms (Halabisky et al., 2012). Possible reasons are that, on the one hand, older individuals need to continue to work due to financial reasons and also self-employed individuals retire later than employees (Parker & Rougier, 2007), on the other hand, the Portuguese entrepreneurial environment may not be attractive for some reasons: high level of bureaucracy and taxes and low market dynamics (GEM, 2012; Pilkova et al., 2014), as well as lower performance orientation pulling individuals away from entrepreneurship (Minola et al., 2016). Our results also show that of those who start firms later in life, it seems that a higher proportion of senior entrepreneurs acquire firms instead of starting from scratch, which may be attributed to the fact that starting a firm from scratch is seen as a riskier activity (Ainsworth & Hardy, 2008).

In Study no. 3 the impact of human capital traits on firm creation by SEs is studied, as well as the impact of age on firm performance. Our results show that senior entrepreneurs are more likely to display entrepreneurial experience and to have spent more years as a paid-employee. In addition, having industry experience negatively influences firm acquisition by older individuals. Entrepreneurial and paid employee experience positively influence firm creation, independently of the age cohort of entrepreneurs (younger and senior entrepreneurs) and the mode of entry (startup vis-à-vis acquisition) considered. Regarding experience in the industry, there is a negative and significant association with firm creation (except for older individuals who start firms from scratch – starters, which is not significant). A possible reason for the negative relationship is that more important than having previous industry experience is to have a broad industry experience, which might be associated with higher levels of confidence (Harms et al., 2014) to manage and perform in a variety of contexts. The second part of

this study examines the link between age and firm performance, a negative and significant relationship is found - older individuals are more likely to generate lower growth in sales and employment compared to younger entrepreneurs (except for growth in sales among those who start from scratch, for whom the relationship is positive but not significant). This may due to the fact that older individuals differ in the goals they define for the business and, thus, the performance reflects those goals (Hessels et al., 2008).

In Study no. 4 it is shown that monetary and non-monetary aspects are both important for SEs. This is possibly related to older individuals' stage of life - a high value is given to emotional goals and the perception of a lower life span may also influence individuals' behavior. In addition, having previous experience in the industry, regarded as "continuity" with previous work history, plays a positive and significant role in business satisfaction, whereas having spent more than 12 months unemployed before founding is associated with lower level of satisfaction by SEs. These differences in work history of the individuals help explain the importance of the continuity theory to justify the lower or higher level of business satisfaction of SEs.

B.2. Policy and research implications

This research revealed insights on the relationship between older individuals and entrepreneurship in a country characterized by an old population (a trend which will tend to maintain and/ or increase, UNFPA, 2013). Given that no research was previously done on this topic in Portugal, and empirical and conceptual studies are still required at a worldwide scale, this research aims to tackle these shortcomings. The results obtained in this thesis suggest some implications for researchers and policy makers at several levels.

The creation and sustainability of companies is considered critical for economic growth and society's development (Audretsch, 2004; Baumol, 1968). Policy makers aim to support and promote an entrepreneurial society and design policies to accomplish this. However, whereas some countries focus on entrepreneurship's contribution to economic growth, others might focus on entrepreneurship's contribution to environmental challenges or towards social inclusion (Ahmad & Hoffmann, 2008). The same applies to senior entrepreneurship where policies can have different goals, such

as economic growth, social inclusion and/ or environmental concerns. In general, our results confirm existing evidence stating that senior entrepreneurs underperform in terms of firm performance (growth in sales and employment) compared to younger entrepreneurs. Also, Lewis and Walker (2009) argue that senior entrepreneurship must not be seen as a way of promoting economic growth. This finding ought to inform policy makers that promoting senior entrepreneurship, compared to younger entrepreneurship, will not lead to similar financial and/ or economic outcomes. Society and policy makers should acknowledge the positive aspects of senior entrepreneurship not merely from a financial basis but also the aspects SEs may extract from the business and produce to society. We consider that the value of senior entrepreneurship encompasses several returns, such as application of human and social capital accumulated during one's life, the individual possibility of remaining active and useful to society, reducing social security expenses, boosting their city's economic and social environment. As our research shows, individuals exhibit higher satisfaction when able to achieve a higher level of creativity and independence, even though monetary satisfaction is still a significant factor.

Regarding the Portuguese entrepreneurial environment, evidence shows that bureaucracy, taxes and low market dynamics of the economy represent barriers towards senior entrepreneurship. Moreover, Minola et al. (2016) show that entrepreneurship should be promoted as a suitable option for older individuals because Portugal has a low performance orientation which means that our culture is not traditionally oriented to encourage and acknowledge innovation, excellence, and performance. Some policies could help create a more friendly entrepreneurial environment, such as aligning business support policies and the assistance that is given at a national and local level, modernize and facilitate the administrative processes related to business creation, provide clear information on how to obtain business aid, capacitate service providers on the special needs and characteristics of older individuals, remove the age criteria from public programs supporting entrepreneurship (Halabisky et al., 2012).

Based on our results, we suggest special attention should be given to unemployed older individuals who become entrepreneurs. Our research shows that older individuals who have spent more than 12 months unemployed before firm startup exhibit a lower business satisfaction. Since our research is based on firms that have been active for at

least 5 years and unemployment is negatively associated with mental health (Frasquilho et al., 2015), we expect that business satisfaction could be as bad or even worst at early stages of the business cycle due to the proximity with unemployment status and also due to the fact that the first years of a business demand a lot of commitment and energy to successful develop it. Improving mental health is an important asset towards developing the economy and the society by increasing individuals' social participation and contribution to society.

Thus, policy-makers stimulating the link between unemployment and senior entrepreneurship may use these results in order to establish appropriate interventions and goals suitable to this specific segment of senior entrepreneurs. We suggest a special program should be designed to tackle the needs and specificities of these entrepreneurs who have previously been unemployed for a longer period of time – who potentially have lower mental health and self-efficacy. The example of the United Kingdom can be followed, The Prince's Initiative for Mature Enterprise (PRIME) - a not-for-profit organization, mostly publicly funded, created in 1988 (which in 2014 was included in Business in the Community – BITC) provides support to unemployed individuals over the age of 50 who wanted to remain active in the labor market by starting his/her own business. PRIME provided support such as access to information, organization of workshops, training and business network events for potential senior entrepreneurs, and mentoring. It would be interesting if future studies could examine the level of business satisfaction, and general wellbeing, among different stages of a business life cycle of senior entrepreneurs who started out of unemployment or not. Studies examining and assessing the outcomes of existing supporting policies and programs for senior entrepreneurs would also be highly valuable.

Cassar (2014) stresses that individuals with previous industry experience, irrespective of age, tend to define more realistic expectations towards business performance. In addition, our findings show that having industry experience is positively associated with business satisfaction. A potential policy orientation we would suggest is the promotion of membership business networks within the industry, or vocational work experience to enable the acquisition of this knowledge. For example, the European

program Erasmus for Young Entrepreneurs[73] is an experience, with promising results, that allows an individual to learn about a specific industry in another European country and then start a business in his/her home country. Similar programs could be developed at a national scale to allow individuals to learn with each other.

As business performance is one of the most important variables explaining business satisfaction and due to its importance towards the sustainability and continuity of the firm, we also suggest vocational training related to business management should be provided to older individuals.

[73] Retrieved on 20th July 2017 from http://www.erasmus-entrepreneurs.eu

B.3. References

Active Ageing Index: Accessed 20 September 2016 from http://www1.unece.org/stat/platform/display/AAI/Active+Ageing+Index+Home.

Agarwal, R., Echambadi, R., Franco, A. M., & Sarkar, M. B. (2004). Knowledge transfer through inheritance: Spin-out generation, development, and survival. *Academy of Management journal*, *47*(4), 501-522.

Ahmad, N., & Hoffmann, A. (2008). A framework for addressing and measuring entrepreneurship.

Ainsworth, S. (2015). Aging entrepreneurs and volunteers: Transition in late career. In *Aging workers and the employee-employer relationship* (pp. 243-260). Springer International Publishing.

Ainsworth, S., & Hardy, C. (2008). The enterprising self: An unsuitable job for an older worker. *Organization*, *15*(3), 389-405.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Alstete, J. W. (2008). Aspects of entrepreneurial success. *Journal of Small Business and Enterprise Development*, *15*(3), 584-594.

Amaral, A. M., Baptista, R., & Lima, F. (2011). Serial entrepreneurship: impact of human capital on time to re-entry. *Small Business Economics*, *37*(1), 1-21.

Amit, R., & Muller, E. (1995). "Push" and "pull" entrepreneurship. *Journal of Small Business & Entrepreneurship*, *12*(4), 64-80.

Amoros, J. E., & Bosma, N. (2014). Global Entrepreneurship Monitor: 2013 *Global Report*.

Argote, L., Beckman, S. L., & Epple, D. (1990). The persistence and transfer of learning in industrial settings. *Management science*, *36*(2), 140-154.

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of management review*, *14*(1), 20-39.

Atchley, R. C. (1989). A continuity theory of normal aging. *The gerontologist*, *29*(2), 183-190.

Atchley, R. C., & Barusch, A. S. (2000). Social forces and ageing: An introduction to social gerontology. *Wadsworth, Belmont, CA*.

Audretsch, D. B. (2004). Sustaining innovation and growth: Public policy support for entrepreneurship. *Industry and innovation*, *11*(3), 167-191.

Autio, E., Pathak, S., & Wennberg, K. (2013). Consequences of cultural practices for entrepreneurial behaviors. *Journal of International Business Studies*, *44*(4), 334-362.

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental psychology*, *23*(5), 611.

Baltes, P. B., Staudinger, U. M., & Lindenberger, U. (1999). Lifespan psychology: Theory and application to intellectual functioning. *Annual review of psychology*, *50*(1), 471-507.

Bates, T. (1990). Entrepreneur human capital inputs and small business longevity. *The review of Economics and Statistics*, 551-559.

Baptista, R., Karaöz, M., & Mendonça, J. (2014). The impact of human capital on the early success of necessity versus opportunity-based entrepreneurs. *Small Business Economics*, *42*(4), 831-847.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.

Baucus, D. A., & Human, S. E. (1995). Second-career entrepreneurs: A multiple case study analysis of entrepreneurial processes and antecedent variables. *Entrepreneurship Theory and Practice*, *19*(2), 41-71.

Baumol, W. J. (1968). Entrepreneurship in economic theory. *The American economic review*, 64-71.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy*, *70*(5, Part 2), 9-49.

Becker, G. S. (1965). A Theory of the Allocation of Time. *The economic journal*, 493-517.

Benz, M., & Frey, B. S. (2008). Being independent is a great thing: Subjective evaluations of self-employment and hierarchy. *Economica*, *75*(298), 362-383.

Biehl, A. M., Gurley-Calvez, T., & Hill, B. (2014). Self-employment of older Americans: do recessions matter?. *Small Business Economics*, *42*(2), 297-309.

Birley, S., & Westhead, P. (1994). A taxonomy of business start-up reasons and their impact on firm growth and size. *Journal of Business Venturing*, *9*(1), 7-31.

Blackburn, R., & Kovalainen, A. (2009). Researching small firms and entrepreneurship: Past, present and future. *International Journal of Management Reviews*, *11*(2), 127-148.

Blanchflower, D. G., Oswald, A., & Stutzer, A. (2001). Latent entrepreneurship across nations. *European Economic Review*, *45*(4), 680-691.

Block, J., & Koellinger, P. (2009). I can't get no satisfaction—Necessity entrepreneurship and procedural utility. *Kyklos*, *62*(2), 191-209.

Block, J., Thurik, R., van der Zwan, P., & Walter, S. (2013). Business takeover or new venture? Individual and environmental determinants from a cross-country study. *Entrepreneurship Theory and Practice*, *37*(5), 1099-1121.

Bosma, N., Van Praag, M., Thurik, R., & De Wit, G. (2004). The value of human and social capital investments for the business performance of startups. *Small Business Economics*, *23*(3), 227-236.

Bradley, D. E., & Roberts, J. A. (2004). Self-employment and job satisfaction: investigating the role of self-efficacy, depression, and seniority. *Journal of Small Business Management*, *42*(1), 37-58.

Burr, J., & Mutchler, J. (2007). Employment in later life: A focus on race/ethnicity and gender. *Generations*, *31*(1), 37-44.

Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2006). Are traditional retirements a thing of the past? New evidence on retirement patterns and bridge jobs. *Business Perspectives*, *18*(2), 26.

Carree, M. A., & Verheul, I. (2012). What makes entrepreneurs happy? Determinants of satisfaction among founders. *Journal of Happiness Studies*, *13*(2), 371-387.

Carstensen, L. L. (2006). The influence of a sense of time on human development. *Science*, *312*(5782), 1913-1915.

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American psychologist*, *54*(3), 165.

Cassar, G. (2014). Industry and startup experience on entrepreneur forecast performance in new firms. *Journal of Business Venturing*, *29*(1), 137-151.

Casson, M.C. (1982). "The Market for Information", in *Casson M (ed) Entrepreneurship*, Edward Elgar Publishing Limited, 202-220.

Cooper, A. C., & Artz, K. W. (1995). Determinants of satisfaction for entrepreneurs. *Journal of Business Venturing*, *10*(6), 439-457.

Cumming, E., Dean, L. R., Newell, D. S., & McCaffrey, I. (1960). Disengagement-a tentative theory of aging. *Sociometry*, *23*(1), 23-35.

Curran, J., & Blackburn, R. A. (2001). Older people and the enterprise society: Age and self-employment propensities. *Work, Employment and Society*, *15*(4), 889-902.

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of business venturing*, *18*(3), 301-331.

D'Amours, M. (2009). Non-standard employment after age 50: How precarious is it?. *relations industrielles/industrial relations*, *64*(2), 209-229.

De Bruin, A., & Firkin, P. (2001). *Self-employment of the older worker*. Labour Market Dynamics Research Programme, Massey University.

De Kok, J. M., Ichou, A., & Verheul, I. (2010). New firm performance: Does the age of founders affect employment creation. *Zoetermeer: EIM Research Reports*, 4-38.

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and social psychology bulletin*, *27*(8), 930-942.

del Mar Salinas-Jiménez, M., Artés, J., & Salinas-Jiménez, J. (2010). Income, motivation, and satisfaction with life: An empirical analysis. *Journal of Happiness Studies*, *11*(6), 779-793.

DeLiema, M., & Bengtson, V. L. (2017). Activity Theory, Disengagement Theory, and Successful Aging. *Encyclopedia of Geropsychology*, 15-20.

DeTienne, D. R., Shepherd, D. A., & De Castro, J. O. (2008). The fallacy of "only the strong survive": The effects of extrinsic motivation on the persistence decisions for under-performing firms. *Journal of Business Venturing*, *23*(5), 528-546.Douglas, E. J., & Shepherd, D. A. (2000). Entrepreneurship as a utility maximizing response. *Journal of Business Venturing*, *15*(3), 231-251.

Douglas, E. J., & Shepherd, D. A. (2002). Self-employment as a career choice: Attitudes, entrepreneurial intentions, and utility maximization. *Entrepreneurship theory and practice*, *26*(3), 81-90.

Estes, C. L. (2011). Crises and old age policy. In *Handbook of sociology of aging* (pp. 297-320). Springer, New York, NY.

European Commission. (1999). Towards a Europe for all ages. Brussels: Author http://ec.europa.eu/employment_social/social_situation/docs/com221_en.pdf

European Commission. (2015). The 2015 Ageing Report. Economic and budgetary projections for the 28 EU Member States (2013-2060). *European Economy*, (3).

Eurostat, Labor Force Survey 2000-2011. doi: http://dx.doi.org/10.1787/888932926072

Evans, D. S., & Leighton, L. S. (1989). Some empirical aspects of entrepreneurship. *The American Economic Review*, *79*(3), 519-535.

Fauchart, E., & Gruber, M. (2011). Darwinians, communitarians, and missionaries: The role of founder identity in entrepreneurship. *Academy of management journal*, *54*(5), 935-957.

Foster, L., & Walker, A. (2014). Active and successful aging: A European policy perspective. *The Gerontologist*, *55*(1), 83-90.

Frasquilho, D., Matos, M. G., Salonna, F., Guerreiro, D., Storti, C. C., Gaspar, T., & Caldas-de-Almeida, J. M. (2016). Mental health outcomes in times of economic recession: a systematic literature review. *BMC public health*, *16*(1), 115.

Frey, B. S. (2008). Happiness: A revolution in economics. *MIT Press Books*, *1*.

Frey, B. S., Benz, M., & Stutzer, A. (2004). Introducing procedural utility: Not only what, but also how matters. *Journal of Institutional and Theoretical Economics JITE*, *160*(3), 377-401.

Fuchs, V. R. (1980). Self-Employment and Labor Force Participation of Older Males (Revised).

Furlong, M. (2004). Entrepreneurship and venture capital: By and for people in mid-and later life. Generations, 28(4), 45-47.

GEM (2012). GEM Portugal-Estudo sobre o Empreendedorismo. *Global Entrepreneurship Monitor. Web Site*.

Giacomin, O., Guyot, J. L., Janssen, F., & Lohest, O. (2007). Novice creators: personal identity and push pull dynamics. In *52th International Council for Small Business (ICSB) World conference* (pp. 1-30).

Giandrea, M. D., Cahill, K. E., & Quinn, J. F. (2008). *Self employment as a step in the retirement process*. Center on Aging & Work/Workplace Flexibility at Boston College.

Gielnik, M. M., Zacher, H., & Frese, M. (2012). Focus on opportunities as a mediator of the relationship between business owners' age and venture growth. *Journal of Business Venturing*, *27*(1), 127-142.

Gimeno, J., Folta, T. B., Cooper, A. C., & Woo, C. Y. (1997). Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative science quarterly*, 750-783.

Gonçalves, V. B., & Pifano, M. S. (2015). Idade e empreendedorismo: uma revisão da literatura.

Gray, C. (2004, September). Age effects on small firm growth and strategic objectives. In *The 34th efmd EISB Conference Abstracts Proceedings* (pp. 8-10).

Gray, H. (2007). Creating older entrepreneurs: a development dilemma. *Development and Learning in Organizations: An International Journal*, *21*(1), 12-14.

Gratton, L., & Scott, A. (2017). The Corporate Implications of Longer Lives. *MIT Sloan Management Review*, *58*(3), 63.

Halabisky, D., Potter, J., & Kautonen, T. (2012). Policy brief on senior entrepreneurship.

Halvorsen, C. J., & Morrow-Howell, N. (2016). A conceptual framework on self-employment in later life: Toward a research agenda. *Work, Aging and Retirement*, waw031.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, *9*(2), 193-206.

Hamilton, B. H. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. *Journal of Political economy*, *108*(3), 604-631.

Harms, R., Luck, F., Kraus, S., & Walsh, S. (2014). On the motivational drivers of gray entrepreneurship: An exploratory study. *Technological forecasting and social change*, *89*, 358-365.

Headd, B. (2003). Redefining business success: Distinguishing between closure and failure. *Small business economics*, *21*(1), 51-61.

Heimonen, T. (2013). Entrepreneurship in Golden Years-Creative Opportunity or Not?. *China-USA Business Review*, *12*(1).

Hennekam, S. (2015). Challenges of older self-employed workers in creative industries: The case of the Netherlands. *Management Decision*, *53*(4), 876-891.

Hessels, J., Van Gelderen, M., & Thurik, R. (2008). Entrepreneurial aspirations, motivations, and their drivers. *Small Business Economics*, *31*(3), 323-339.

Hodges, J. (2012). The transition of midlife women from organisational into self-employment. *Gender in Management: An International Journal*, *27*(3), 186-201.

Holienka, M., Jančovičová, Z., & Kovacicova, Z. DRIVERS OF SENIOR ENTREPRENEURSHIP IN VISEGRAD COUNTRIES. In *Innovation Management, Entrepreneurship and Corporate Sustainability (IMECS 2016)* (pp. 236-246). Vysoká škola ekonomická v Praze.

Instituto Nacional de Estatística [INE]. (2012). Censos - Resultados Definitivos. Portugal, 2011. Accessed 20 September 2016 from http://censos.ine.pt/xportal/xmain?xpid=CENSOS&xpgid=ine_censos_publicacao_det&contexto=pu&PUBLICACOESpub_boui=73212469&PUBLICACOESmodo=2&selTab=tab1&pcensos=61969554.

Jennings, P., & Beaver, G. (1997). The performance and competitive advantage of small firms: a management perspective. *International small business journal*, *15*(2), 63-75.

Karoly, L. A., & Zissimopoulos, J. (2004). AND THE 50+ POPULATION. *SELF*.

Kautonen, T. (2008). Understanding the older entrepreneur: Comparing third age and prime age entrepreneurs in Finland. *International Journal of Business Science and Applied Management*, *3*(3), 3-13.

Kautonen, T. (2013). Senior entrepreneurship. *A background paper for the OECD Centre for Entrepreneurship, SMEs and Local Development*.

Kautonen, T., & Minniti, M. (2014). 'Fifty is the new thirty': ageing well and start-up activities. *Applied Economics Letters*, *21*(16), 1161-1164.

Kautonen, T., & Palmroos, J. (2010). The impact of a necessity-based start-up on subsequent entrepreneurial satisfaction. *International Entrepreneurship and Management Journal*, *6*(3), 285-300.

Kautonen, T., Down, S., & Minniti, M. (2014). Ageing and entrepreneurial preferences. *Small Business Economics*, *42*(3), 579-594.

Kautonen, T., Down, S., & South, L. (2008). Enterprise support for older entrepreneurs: The case of PRIME in the UK. *International Journal of Entrepreneurial Behavior & Research*, *14*(2), 85-101.

Kautonen, T., Luoto, S., & Tornikoski, E. T. (2010). Influence of work history on entrepreneurial intentions in 'prime age'and 'third age': A preliminary study. *International small business journal*, *28*(6), 583-601.

Kautonen, T., Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, *39*(3), 655-674.

Kautonen, T., Kibler, E., & Minniti, M. (2017). Late-career entrepreneurship, income and quality of life. *Journal of Business Venturing*, *32*(3), 318-333.

Kean, R. C., Van Zandt, S., & Maupin, W. (1993). Successful aging: The older entrepreneur. *Journal of Women & Aging*, *5*(1), 25-42.

Kelley, D., Singer, S., & Herrington, M. (2016). 2015/16 global report. *GEM Global Entrepreneurship Monitor, Babson College, Universidad del Desarrollo, Universiti Tun Abdul Razak, Tecnológico de Monterrey, London Business School, Babson Park, MA, Santiago, London*.

Kerr, G. (2017). The motivations, business satisfaction and commitment of career and later-life older entrepreneurs. *Journal of Small Business & Entrepreneurship*, *29*(2), 140-155.

Kibler, E., Wainwright, T., Kautonen, T., & Blackburn, R. (2015). Can social exclusion against "older entrepreneurs" be managed?. *Journal of Small Business Management*, *53*(S1), 193-208.

Kihlstrom, R. E., & Laffont, J. J. (1979). A general equilibrium entrepreneurial theory of firm formation based on risk aversion. *Journal of Political Economy*, *87*(4), 719-748.

Knight, F. H. (1921). Risk, uncertainty and profit. *New York: Hart, Schaffner and Marx*.

Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: applying the theory of planned behaviour. *Entrepreneurship & Regional Development*, *5*(4), 315-330.

Kruse, A., & Schmitt, E. (2012). Generativity as a route to active ageing. *Current gerontology and geriatrics research*, *2012*.

Kulik, C. T., Ryan, S., Harper, S., & George, G. (2014). Aging populations and management. *Academy of Management Journal*, *57*(4), 929-935.

Kurek, S., & Rachwał, T. (2011). Development of entrepreneurship in ageing populations of The European Union. *Procedia-Social and Behavioral Sciences*, *19*, 397-405.

Lazear, E. P. (2004). Balanced skills and entrepreneurship. *The American Economic Review*, *94*(2), 208-211.

Lafuente, A., & Salas, V. (1989). Types of entrepreneurs and firms: The case of new Spanish firms. *Strategic Management Journal*, *10*(1), 17-30.

Levesque, M., & Minniti, M. (2006). The effect of aging on entrepreneurial behavior. *Journal of Business Venturing*, *21*(2), 177-194.

Lévesque, M., & Minniti, M. (2011). Age matters: How demographics influence aggregate entrepreneurship. *Strategic Entrepreneurship Journal*, *5*(3), 269-284.

Lewis, K., & Walker, E. A. (2011). Self-employment: Policy panacea for an ageing population?. *Small Enterprise Research*, 18(2), 143-151.

Li, J. (2013). Ageing liabilities or ageing assets: The effect of the founder's age on new venture performance, *Essex Business School Research Conference*, University of Essex.

Liñán, F., Santos, F. J., & Fernández, J. (2011). The influence of perceptions on potential entrepreneurs. *International Entrepreneurship and Management Journal*, *7*(3), 373.

Livanos, I. (2009). What determines self-employment? A comparative study. *Applied Economics Letters*, *16*(3), 227-232.

Logan, J. (2014). An exploration of the challenges facing women starting business at fifty. *International Journal of Gender and Entrepreneurship*, *6*(1), 83-96.

Lucas Jr, R. E. (1978). On the size distribution of business firms. *The Bell Journal of Economics*, 508-523.Parker, S. C. (2009). *The economics of entrepreneurship*. Cambridge University Press.

Luck, F., Kraus, S., & Bouncken, R. B. (2014). Senior entrepreneurship: Definitions and underlying theories. *International Journal of Business Research*, 14(3), 209-215.

Mallett, O., & Wapshott, R. (2015). Making sense of self-employment in late career: understanding the identity work of olderpreneurs. *Work, employment and society*, *29*(2), 250-266.

Maritz, A. (2015). Senior entrepreneurship in Australia: an exploratory approach. *International Journal of Organizational Innovation* (Online), 7(3), 6.

Marvel, M. R., Davis, J. L., & Sproul, C. R. (2016). Human capital and entrepreneurship research: A critical review and future directions. *Entrepreneurship Theory and Practice*, *40*(3), 599-626.

Mincer, J. (1974). Schooling, Experience, and Earnings. Human Behavior & Social Institutions No. 2.

Mincer, J., & Ofek, H. (1982). Interrupted work careers: Depreciation and restoration of human capital. *Journal of human resources*, 3-24.

Minola, T., Criaco, G., & Cassia, L. (2014). Are youth really different? New beliefs for old practices in entrepreneurship. *International Journal of Entrepreneurship and Innovation Management* 2, 18(2-3), 233-259.

Minola, T., Criaco, G., & Obschonka, M. (2016). Age, culture, and self-employment motivation. *Small Business Economics*, *46*(2), 187-213.

Neuman, S., & Weiss, A. (1995). On the effects of schooling vintage on experience-earnings profiles: theory and evidence. *European economic review*, *39*(5), 943-955.

Nunnally, J. C. (1978). Psychometric theory. Mc Graw-Hill Publ Co. *New York*.

Organisation for Economic Co-operation and Development. (1998). *Maintaining prosperity in an ageing society*. Paris: OECD.

OECD (2011). *OECD Employment Outlook 2011*. Organisation for Economic Co-operation and Development.

Parker, S. C. (2009). *The economics of entrepreneurship*. Cambridge University Press.

Parker, S. C. (2013). Do serial entrepreneurs run successively better-performing businesses?. *Journal of Business Venturing*, *28*(5), 652-666.

Parker, S. C., & Rougier, J. C. (2007). The retirement behaviour of the self-employed in Britain. *Applied Economics*, *39*(6), 697-713.

Parker, S. C., & Van Praag, M. (2010). Group status and entrepreneurship. *Journal of Economics & Management Strategy*, *19*(4), 919-945.

Parry, J., & Taylor, R. F. (2007). Orientation, opportunity and autonomy: why people work after state pension age in three areas of England. *Ageing & society*, *27*(4), 579-598.

Patel, S. H., & Gray, C. (2006). *The Grey Entrepreneurs in UK. Open University Research Centre on Innovation, Knowledge and Development* (No. 18). IKD Working paper.

Pilkova, A., Holienka, M., & Rehak, J. (2014). Senior entrepreneurship in the perspective of European entrepreneurial environment. *Procedia Economics and Finance*, *12*, 523-532.

Platman, K. (2003). The self-designed career in later life: a study of older portfolio workers in the United Kingdom. *Ageing & Society*, *23*(3), 281-302.

Quinn, J. (2010). Work, retirement, and the encore career: Elders and the future of the American workforce. Generations, 34(3), 45-55.

Rerup, C. (2005). Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship. *Scandinavian Journal of Management*, *21*(4), 451-472.

Reynolds, P. D., Hay, M., Bygrave, W. D., Camp, S. M., & Autio, E. (2000). Global entrepreneurship monitor: 2000 executive report.

Rolfe, B., Leshabari, S., Rutta, F., & Murray, S. F. (2008). The crisis in human resources for health care and the potential of a 'retired'workforce: case study of the independent midwifery sector in Tanzania. *Health Policy and Planning*, *23*(2), 137-149.

Rogoff, E. (2007). Opportunities for entrepreneurship in later life. *Generations*, *31*(1), 90-95.

Santarelli, E., & Vivarelli, M. (2007). Entrepreneurship and the process of firms' entry, survival and growth. *Industrial and corporate change*, *16*(3), 455-488.

Say, P. Y. A., & Patrickson, M. (2012). Switching to entrepreneurship in mid career: A Singaporean perspective. *Journal of Enterprising Culture*, *20*(02), 119-149.

Schott, T., Rogoff, E., Herrington, M., & Kew, P. (2016). Senior entrepreneurship. *Special Topic Report*, *2017*.

Schumpeter, J. A. (1934). *Theory economic development*. Harvard University Press.

Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship.

Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization science*, *11*(4), 448-469.

Shepherd, D. A. (2015). Party On! A call for entrepreneurship research that is more interactive, activity based, cognitively hot, compassionate, and prosocial. *Journal of Business Venturing*, *30*(4), 489-507.

Shir, N. (2015). *Entrepreneurial Well-Being: The Payoff Structure of Business Creation*. Stockholm School of Economics.

Singh, R. P. (2009). The aging population and mature entrepreneurs: Market trends and implications for entrepreneurship. *New England Journal of Entrepreneurship*, *12*(1), 45.

Singh, G., & DeNoble, A. (2003). Early retirees as the next generation of entrepreneurs. *Entrepreneurship theory and practice*, *27*(3), 207-226.

Singh, G., & Verma, A. (2003). Work history and later-life labor force participation: Evidence from a large telecommunications firm. *ILR Review*, *56*(4), 699-715.

Solinge, H. V. (2012). Explaining transitions into self-employment after (early) retirement.

Solinge, H. (2014). Who opts for self-employment after retirement? A longitudinal study in the Netherlands. *European Journal of Ageing*, *11*(3), 261-272.

Terjesen, S. (2005). Senior women managers' transition to entrepreneurship: Leveraging embedded career capital. *Career Development International*, *10*(3), 246-259.

Tervo, H. (2014). Starting a new business later in life. *Journal of Small Business & Entrepreneurship*, *27*(2), 171-190.

Tornikoski, E. T., & Kautonen, T. (2009). Enterprise as sunset career? Entrepreneurial intentions in the ageing population. *International Journal of Entrepreneurship and Small Business*, *8*(2), 278-291.

Ucbasaran, D., Westhead, P., & Wright, M. (2008). Opportunity identification and pursuit: Does an entrepreneur's human capital matter?. *Small Business Economics*, *30*(2), 153-173.

Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of business venturing*, *26*(3), 341-358.

UNFPA. (2013). "Ageing in the Twenty-First Century: A Celebration and A Challenge", unpublished.

Van Es, F., & Van Vuuren, D. J. (2011). A decomposition of the growth in self-employment. *Applied Economics Letters*, *18*(17), 1665-1669.

Wagner, J. (2006). Are nascent entrepreneurs 'Jacks-of-all-trades'? A test of Lazear's theory of entrepreneurship with German data. *Applied Economics*, *38*(20), 2415-2419.

Wainwright, T., & Kibler, E. (2013). Beyond financialization: older entrepreneurship and retirement planning. *Journal of Economic Geography*, *14*(4), 849-864.

Walker, A. (2006). Active ageing in employment: Its meaning and potential. *Asia-Pacific Review*, *13*(1), 78-93.

Walker, E. A., & Webster, B. J. (2007). Gender, age and self-employment: some things change, some stay the same. *Women in Management Review*, *22*(2), 122-135.

Warr, P.B. (1987). Work, unemployment, and mental health: Clarendon Press.

Weber, P., & Schaper, M. (2004). Understanding the grey entrepreneur. *Journal of enterprising culture*, *12*(02), 147-164.

Weber, P., & Schaper, M. (2007). Are mature (grey) entrepreneurs more successful than their younger counterparts? A study of Australian tourism hosted accommodation owners. In *Proceedings of the Small Enterprise Conference: Building Sustainable Growth in SMEs, Manakau City, Auckland*.

Webster, B., & Walker, E. (2005). Smart training for the older entrepreneur. International Council for Small Business.

Wenger, J. B., & Reynolds, J. (2009). Older married workers and nonstandard jobs: The effects of health and health insurance. *Industrial Relations: A Journal of Economy and Society*, *48*(3), 411-431.

Wiklund, J., & Shepherd, D. (2003). Aspiring for, and achieving growth: The moderating role of resources and opportunities. *Journal of management studies*, *40*(8), 1919-1941.

World Health Organization. (2002). Active Ageing-A Policy Framework. A contribution of the World Health Organization to the Second United Nations World Assembly on Ageing. *Madrid (ES): WHO*.

Zhang, T. (2008). *Elderly entrepreneurship in an aging US economy: it's never too late* (Vol. 2). World Scientific.

Zissimopoulos, J. M., & Karoly, L. A. (2007). Transitions to self-employment at older ages: The role of wealth, health, health insurance and other factors. *Labour Economics*, *14*(2), 269-295.

Zissimopoulos, J. M., & Karoly, L. A. (2009). Labor-force dynamics at older ages: Movements into self-employment for workers and nonworkers. *Research on Aging*, *31*(1), 89-111.

Zissimopoulos, J. M., Karoly, L. A., & Gu, Q. (2009). Liquidity constraints, household wealth, and self-employment: the case of older workers.